

THE  
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**OF AUSTRALIA**

VOL. II.—10TH YEAR.

SYDNEY: SATURDAY, JULY 28, 1923.

No. 4.

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## Table of Contents

ORIGINAL ARTICLES—	PAGE.	ABSTRACTS FROM CURRENT MEDICAL LITERATURE—	PAGE.
"Hyoscine and Morphine Narcosis in the Management of Labour," by F. A. HOPE MICHÖB, M.B., M.R.C.S., L.R.C.P. . . . .	83	Bacteriology and Immunology . . . . .	100
"A Simplified Method of Preparing a Modified Romanowsky Blood Stain," by D. L. BARLOW, M.D., B.S. . . . .	90	Hygiene . . . . .	101
REPORTS OF CASES—		BRITISH MEDICAL ASSOCIATION NEWS—	
"Encephalitis Lethargica," by C. A. HOGG, M.B., Ch.M., and a Pathological Report by OLIVER LATHAM, M.B., Ch.M. . . . .	90	Scientific . . . . .	102
REVIEWS—		Nominations and Elections . . . . .	106
Bacteriophage . . . . .	95	AUSTRALASIAN MEDICAL PUBLISHING COMPANY, LIMITED—	
Physical Exercises for Invalids and Convalescents . . . . .	96	Annual Meeting . . . . .	107
LEADING ARTICLES—		OBITUARY—	
The Control of Venereal Disease . . . . .	97	Patrick Kennedy . . . . .	107
The New Loan . . . . .	98	PROCEEDINGS OF THE AUSTRALIAN MEDICAL BOARDS . . . . .	107
CURRENT COMMENT—		BOOKS RECEIVED . . . . .	107
Bismuth in the Treatment of Syphilis . . . . .	98	MEDICAL APPOINTMENTS . . . . .	108
Magnesium Sulphate as a Sedative . . . . .	99	MEDICAL APPOINTMENTS VACANT, ETC. . . . .	108
		MEDICAL APPOINTMENTS: IMPORTANT NOTICE . . . . .	108
		DIARY FOR THE MONTH . . . . .	108
		EDITORIAL NOTICES . . . . .	108

### HYOSCINE AND MORPHINE NARCOSIS IN THE MANAGEMENT OF LABOUR.\*

By F. A. HOPE MICHÖB, M.B. (London), M.R.C.S. (England), L.R.C.P. (London),  
Longreach, Queensland.

IN 1916, attracted by articles written occasionally in *The British Medical Journal*, I commenced using hyoscine and morphine to relieve the pains of labour, but my doses erred so much on the low side that I did not meet with much success.

In 1918 I obtained Alfred Hellman's book, "Analgesia and Amnesia in Parturition." Hellman gives the credit of introducing this method of controlling childbirth to Steinbüchel who published an article on the subject in 1902, but it was not until 1906 when Gauss, of Freiburg, undertook the Steinbüchel treatment that the method made any progress. I believe that he (Gauss) was the first to use the unfortunate phrase "twilight sleep." I say unfortunate, because though the name has caught on with the general public and it is now difficult to avoid

using the term, it savours of charlatanism and has I think raised an antagonistic feeling amongst a considerable portion of the medical profession.

Between 1918 and 1920 I tried to carry out the treatment in seventy patients; the records were burnt in a fire, so I am unable to produce them for your inspection. In 1921 I commenced again and I am placing before you tonight a record of fifty cases, which I recognize is a very small number on which to base a paper.

#### Dosage.

The drugs I have been using have been Burroughs, Wellcome and Company's "Tabloid (Hypodermic) Hyoscine Compound A," consisting of morphine 0.011 gramme (1/6 grain), hyoscine 0.00065 gramme (1/100 grain) and atropine sulphate 0.00036 gramme (1/180 grain). I also use "Tabloid Hyoscine" 0.00033 gramme (1/200 grain) which I always instruct my nurses to dissolve in so much water and to throw away half, so that the dose has been 0.00016 gramme (1/400 grain). Later I have been using Hoffmann-La Roche's "Omnopon" put up in ampoules for my first injection. These ampoules consist of "Omnopon" 0.043 gramme (2/3 grain) and hyoscine 0.00043 gramme (1/150 grain). The amnesia is maintained by approximately hourly doses of hyoscine 0.00016 gramme (1/400 grain). I have

\* Read at a meeting of the Queensland Branch of the British Medical Association on June 1, 1923.

\* Gauss actually introduced the term *Dämmerschlaf*, which was subsequently translated into "twilight sleep," a very inaccurate and misleading term.

used "Omnopon" ten times for the last eleven patients and have formed the opinion that it puts a patient more rapidly into the amnesic state and that it will be found particularly useful in dealing with big women whom I have found some difficulty in getting under with the hyoscine and morphine combination. In fact nearly all my "partial successes" were in women who were over seventy kilograms (11 stone) in weight.

#### Method of Procedure.

My mode of procedure has been as follows. The patient is prepared in the usual manner, shaved and made to pass her water; an enema is administered. In multiparæ as soon as labour has started I commence the injections, in fact I sometimes order the first injection to be given before the enema is given or the shaving carried out, but it is better if possible to have all the initial preparation carried out before the first injection so that the patient can settle at once to sleep. In primiparæ I usually wait until the os is dilated sufficiently to admit two fingers; the initial preparation can nearly always be carried out before the first injection is given. If the patient is nervous, I usually talk to her and suggest that she should go off to sleep. I have cotton wool placed in her ears, moistened with a little oil; I darken the room and for the early injections I usually keep the patients in their own rooms. I endeavour to arrange that the hospital should be kept as quiet as possible, though the ordinary routine of hospital work is not upset in any way.

I have formed the opinion that it is better to give the second injection (hyoscine 0.00015 gramme) fifty minutes after the first. I repeat the injections as frequently as may be necessary. Usually the first three or four are given at fifty minute intervals, but as the labour progresses, it may be possible to extend the interval to seventy minutes or even to one hundred and twenty minutes. This I do if the patient is passing out of the amnesic stage into the analgesic, my aim being to keep them in the amnesic condition. This condition I ascertain by the general condition of the patient which is somewhat difficult to put down in writing or to explain in the abstract, but the points I take notice of are: (i.) The way in which the patient reacts to her pains and (ii.) her response to the "memory test." She should be slightly roused by the pain; she may groan to a slight extent and may move her limbs about, but as soon as the pain is over, she should fall to sleep again and remain asleep until the next pain occurs.

The "memory test" is a useful guide to show whether the patient is passing into a too profound narcosis, the object being to keep her in a condition of amnesia, so that she cannot remember her pains and the narcosis should be sufficiently profound that she is bordering on a condition of analgesia. The test is practised by holding any article, such as a stethoscope, thermometer case, hair brush and the like in front of the patient and asking her what it is; half an hour after she is shown the same article and is asked if she remembers seeing it before. If she

answers readily in the affirmative, she is too lightly under the influence of the drug; if she does not recognize what it is or does not remember being shown it before, she is then in the required amnesic state, but if it is impossible to rouse her, the narcosis is too profound.

Before this stage has been reached useful information can be obtained by noticing the trouble that may be necessary to rouse the patient, to make her concentrate her attention on the object at which you want her to look. I do not use the "memory test" until after the third injection, as I have not seen a patient pass into a too profound narcosis before that. Among my first seventy patients I had several examples of partial successes, which I attributed to having roused the patient too frequently in the early stages by the "memory test," which prevented her passing steadily in the amnesic state.

Besides the above two observations the pulse-rate is carefully watched. It usually increases as the labour progresses, which I think is the same in most labours not influenced by hyoscine and morphine. In four of my fifty patients—Nos. 9, 29, 44, 46—the pulse-rate reached 120, with no bad result to either mother or child, but I always reduce the frequency of the injections when the pulse-rate reaches 120. In case No. 44 the pulse-rate suddenly rose to 132, but I think that was due to the severity of the pains.

The condition of the pupils is noted. They frequently dilate, which symptom of itself is of no consequence. If, however, the pupils did not react to light and the corneal reflex had disappeared, I should certainly stop the injections, but so far I have not reached this degree of analgesia. I think the general condition of the patient and the result of the "memory test" would indicate the necessity of stopping the administration long before this stage had been reached. It would be decidedly dangerous to all were this stage to be reached.

Many patients are covered with an erythematous rash which is no indication of the degree of amnesia, but is an idiosyncrasy peculiar to these patients. It apparently does no harm and disappears a few hours after the baby is born. I have lately been taking the temperature of these patients and find that they often have a rise of temperature to as much as 39° C. (about 102° F.). The temperature falls soon after the child is born and does not appear to affect the mother or child.

Having commenced giving the injections I aim at obtaining a steady increase in the amnesia until the patient is bordering on the analgesic stage. If owing to the pains becoming too severe or from any extraneous cause the patient is roused before she has been brought sufficiently under the influence of the drugs, the treatment will probably result in failure. This is more likely to occur if the injections are commenced when the labour has progressed too far. I have tried administering to these patients a little chloroform in order to give the hyoscine time to act, but have not met with much success. When the patient has reached the proper



degree of amnesia, it is advisable to increase the intervals between the injections. One has much more scope to work in than in the earlier stages of the administration.

My patients are all lifted on to an ambulance and taken into the operating room for the latter part of the second stage of the confinement. This does not appear to awaken them, as I have not found one woman so far who was aware that the shift had taken place. A considerable amount of disturbance can be borne by the patient once amnesia has been established. This is shown with Case No. 43. The patient had been placed in the operating room early and had had her first four injections, when the operating room was required urgently. I had her put on the ambulance and placed on a verandah just outside, so that I could keep my eye upon her. It was a rather noisy place and I thought that the treatment would sure to be a failure, but afterwards the patient had no idea of what had taken place and has no recollection of her confinement whatsoever.

The rest of the confinement I manage in the ordinary way. I administer "Pituitrin" or apply forceps, as I think necessary. Just at the end of the second stage I often give a little chloroform, particularly if I think that the pains are getting too strong. Frequently the chloroform will slow the pains. If that occurs, I apply forceps just to assist the head over the perineum, using very little force, only a slight assistance to the pains.

While the patient is under the influence of hyoscine she will require a considerable amount of water to drink. I have a catheter passed every five or six hours.

#### Results Obtained.

I submit for your perusal the detained account of my last fifty cases.<sup>1</sup> The fifty patients curiously consist of twenty-five primiparæ and twenty-five multiparæ. The average time that each labour lasted, *id est* the first and second stages together was 17.40 hours in primiparæ and 8.25 hours in multiparæ.

I have compared the times that the different stages lasted in the fifty patients treated by the hyoscine and morphine method with fifty other patients treated by myself in the ordinary way, taking twenty-five primiparæ and twenty-five multiparæ in each group; the result is as shown in table below:

It is difficult to be accurate as to the exact time

that the first stage ends and the second commences, so I think it would be more satisfactory to add the two stages together for a comparison. It thus appears that the duration of the first and second stages in primiparæ was 17.40 hours with hyoscine and morphine and 14.89 hours without. In multiparæ it was 8.25 hours with hyoscine and morphine and 8.04 hours without.

My records therefore show that with the hyoscine and morphine method the first and second stages are prolonged 2.51 hours in primiparæ and only 0.21 hour in multiparæ.

The average number of injections given has been 5.9 in the whole series.

I do not wish to bore you by going into the details of the whole fifty cases. The full details are in front of you, but I should like to draw your attention to the following points:

In case No. 1 I considered that the severe pains between the sixth and seventh injections partially awakened the patient before I had managed to get her under the influence of chloroform. I originally put this case down as only a partial success, but in putting these records together I wrote to all the patients I could trace, asking each one to put down in writing what her experience was with this method of managing labour, whether they had experienced any pain or unpleasantness of any sort, if so to what extent and so forth. An extract from the letter sent to me by this patient is as follows: "I have had two confinements, the 'twilight sleep' being my second, and if ever I should be going to have another confinement, I will travel a long way to get 'twilight sleep.' There was no comparison in the confinements, 'twilight sleep' leaving the other in the shade. You speak of my case being only a partial success. Well, when I was heavy in labour for three solid hours, I was in a peaceful sleep. I experienced the expulsion pains. I regained my strength much quicker after the 'twilight sleep' than after the ordinary confinement. With the drugs my eyesight was affected for two or three days, but afterwards became normal and as good as ever again."

Case 2 I have put down as a partial success, as the seventh injection was delayed too long and the patient partially came round. She herself states: "I knew nothing at all clearly and even lost count of time; I remember nothing about the birth." This was the second time this patient had had hyoscine and morphine, but with her third child she was not treated by this method. She states in describing the third confinement: "I suffered a great deal of

<sup>1</sup> A record of each of the fifty patients was distributed at the meeting.

Parity.	Duration with Hyoscine and Morphine.			Duration without Hyoscine and Morphine.		
	First Stage.	Second Stage.	Third Stage.	First Stage.	Second Stage.	Third Stage.
Primiparæ . . . . .	15.2 hours.	2.20 hours.	14.79 minutes	12.64 hours.	2.25 hours.	12.52 minutes.
Multiparæ . . . . .	7.33 hours	0.92 hours.	14.4 minutes	6.96 hours.	1.08 hours.	12 minutes.

pain and I felt very tired and worn for some time after, but I recovered quickly. . . . I was able to realize what benefit I had derived from 'twilight sleep.' The case of patient No. 5 was ordinary, except that she was treated in the orthodox way for the second child and she has quite made up her mind which method she is going to have for her third.

No. 6 is of interest because the patient was suffering from active cardiac disease at the time of the confinement. She has since had her third child, the birth of which is recorded as Case 50.

No. 9 I have recorded as a partial success, as I could not get her thoroughly under; she struggled a great deal. She is a big muscular woman and if I have to treat her again, I shall use "Omnopon" and give her the injections closer together. Her own account is as follows: "I do not remember very much pain and have only a confused memory of anything that happened." She has had her second child on July 25, 1922, without hyoscine and morphine. The confinement was much shorter, the duration of the successive stages being six hours, two hours and thirty minutes respectively. The weight of the baby was 3.7 kilogrammes (8½ lbs.). She had chloroform for the last half hour, but she has stated that she will go out of her way to obtain "twilight sleep," if there should be a third.

Nos. 10 and 11 were straightforward and complete successes. No. 12 was a partial success, owing to the fact that severe pains at the end of the second stage aroused the patient too much, so that she remembered the administration of the chloroform and consequently she has some memory of the confinement. Her husband who is a medical man, on seeing these remarks told me that she really remembers nothing and that he is quite satisfied as to the advantage to be obtained by hyoscine and morphine narcosis. He was about the hospital during the confinement.

Case No. 15 was normal, except that the patient's history was interesting. This was her seventh child. The first four she had without hyoscine and morphine, the fifth with and at the sixth she was unable to obtain hyoscine and morphine. In this case she made particular arrangements to be certain of being treated with this form of narcosis.

In Case No. 17 the injections were commenced too late. I expected the case to have been a failure, but the patient herself states "she felt nothing shortly after the first injection."

In Case No. 18 the injections were begun too late and labour was rapid. This is the sort of case which is not suitable as a rule for the hyoscine and morphine method.

The patient No. 19 gave birth to twins. She had a large amount of albumin in the urine, which was detected just before the birth. This was a complete success. The patient came seven hundred miles in order to have the same treatment for her next confinement which is reported as Case No. 43. Though the babies were on the small size [1.9 and 2.0 kilo-

grams (4½ lbs. and 4½ lbs.)] they were not affected at all by the hyoscine and morphine.

I did not think that the narcosis in patient No. 21 was going to be a success during the progress of the labour, as the patient seemed to be so lightly under and she showed no sign at all by the memory test; apparently she did not lose her memory. She has since told me that she remembers nothing of the confinement; it was her second child and she has a vivid recollection of the first. She is pregnant now and has arranged to have hyoscine and morphine for the third.

In Case No. 28 I have to record a failure. The failure was due to the fact that I had not realized that a big woman requires the doses to be pushed and I did not succeed in getting her sufficiently under.

Patient No. 29 had albumin in the urine; otherwise the course was normal.

In Case No. 31 there was nothing unusual, except for some trouble to make the child breathe.

In Case No. 32 there was a breech presentation. The patient was a very nervous, elderly primipara. The injections were stopped for sixteen hours, so that she had two injections containing morphine. Complete success resulted for both mother and child.

Case No. 35 was another failure. This was a very difficult confinement. The age of the patient was thirty-eight years. The rigidity of the os and the small amount of *liquor amnii* which was present, made the first stage exceptionally long. I cannot argue that the death of the fetus was not due to the hyoscine and morphine, but fetus often die in prolonged labours such as this, even without any administration of hyoscine and morphine. In this case I used more injections than I have given to any other patient, but Dr. Webb-Johnson reports in his book on "twilight sleep" a successful case with forty-three injections and several with twenty injections.

Case No. 39 was successful as far as the mother was concerned, but opponents to the hyoscine and morphine method may point to it in arguing against its use. The patient had passed through a great deal of trouble during her pregnancy, inasmuch as during the first five months she vomited to such an extent that she had eventually to take to her bed and during the fifth month a consultation was held to consider the advisability of stopping the pregnancy. Treatment, however, improved matters and the vomiting stopped. Then five weeks before labour commenced albumin appeared in her urine and steadily increased in quantity. This necessitated dieting and occasionally starvation. As the patient had come out to this country on account of pulmonary tuberculosis, there were several causes which would predispose to deficient vitality in the child.

Case No. 47 was ordinary as far as the mother was concerned, but I had greater difficulty in making the baby breathe satisfactorily than I have had in any other case.

Of the fifty cases, I claim a complete success in forty-three or 86%, partial success in five or 10% and failure in two or 4%. This is a great deal better than I had in my first seventy cases in which I only had 57% of complete successes, 33% of partial successes and 10% failures.

Of the partial successes in the fifty cases before you, the patients Nos. 2 and 9 have since told me that they were quite satisfied themselves. I allowed patient No. 12 to come too far round as the pains were getting severe and I have not been able to trace her. In Case No. 14 I was too late commencing. Case No. 39 was a success as far as the mother was concerned, but as the child subsequently died, I have put it down as a partial success.

#### **Alleged Disadvantages.**

Having gone through the fifty cases in detail, I shall now discuss the arguments for and against the method and shall commence with the disadvantages set out by the opponents of the method.

#### *Difficult Technique.*

There is very little difficulty. I taught myself from articles extracted from the journals, but now there is a lot of literature on the subject. "Twilight Sleep" by Hellmann and a similar book by Cecil Webb-Johnson will give all the information required; there is a good article by Fairbairn in the "Encyclopædia of Medicine." There are also two very good papers read at the Annual Meeting of the British Medical Association at Glasgow in July, 1922, by Osborne, Greenwood and Herschman and reported in *The British Medical Journal* of October 14, 1922.

As with every other anæsthetic experience improves the administration and increases the successes.

#### *The Necessity for Close Attention and a Thoroughly Experienced Nurse.*

I shall take the latter first. The nurse is undoubtedly very important and unless you are able to have the same nurse attending all your patients, you will have to give a great deal more personal attention to the case yourself. My experience is that I have been able to instruct an obstetric nurse who is willing and anxious to learn the method, in a very few cases, usually under half a dozen, to make all the observations I require; then after ascertaining that the presentation is correct and the size of the *os uteri*, I tell her to give the first injection and to give the second in fifty minutes. I usually see the patient again before the third. After that I often do not see the patient again for two or three hours, but arrange that the nurse should ring me up and give a report before she gives another injection, which means that she usually rings up three-quarters of an hour after each injection; I find that they very soon are able to estimate the degree of amnesia. I make them record the general condition of the patient, the pulse-rate, the manner in which they react to the pains and I teach them to use the "memory test."

If there is any doubt at all about the condition, I see the patient myself. With a fresh nurse I see the patient myself every hour.

Since I have been practising this hyoscine and morphine method, that is since 1916, I have had three nurses and I have had no trouble with any of them. The fact that you require a nurse with a special experience means that it is difficult to carry out the treatment except in a private hospital or nursing home and in these homes the patients should have separate rooms, which can be darkened and kept as much as possible free from noise. I have only had one patient in a private house with a strange nurse and I stayed the whole time with this patient, a matter of five and a half hours. This, of course, is a decided objection, but if patients insist on stopping in their own homes, which in my opinion is a mistake, whether hyoscine and morphine is used or not, they must be prepared to pay an adequate fee to compensate the greater interruption to the practitioner's work. This, I think, they will willingly do in order to escape the pains of childbirth. Personally I never advise the treatment except in my own private hospital with my own nurse.

#### *The Restlessness that May Occur.*

This is of very little importance; it only occurs in very few cases, in my experience under 10%; it is troublesome, but easily overcome.

#### *Multiparæ Arriving too Late to Receive Proper Treatment.*

This cannot be avoided, but if the labour is rapid hyoscine and morphine treatment will not be required. If the late arrival is due to carelessness these patients generally take pains not to make the same mistake again.

#### *Variation in the Strength of the Scopolamine Used.*

I have not detected any variation in the strength of Burroughs, Wellcome & Company's "Tabloids" or Hoffmann-la-Roche's ampoules.

#### *Occasional Delirium.*

Only one of my patients in the series of one hundred and twenty had delirium. This was in my first seventy. I had to stop the administration after the first injection and though I had considerable difficulty in controlling the patient, she herself knew nothing about the confinement and was quite herself the next day.

#### *The Oligopnœic Condition of the Baby.*

With this I associate the apnœic condition also. This is the only disadvantage which really requires consideration. Undoubtedly a certain number of babies are born "blue" and others pink, but in an apnœic condition. At first this condition disturbed me considerably, until I found that whatever I did to make the babies breathe, they all seemed to go through the same course of events, *videlicet* they will usually take one breath immediately after birth, then there will be no sign for about five minutes; then there will be another gasp; then nothing for another five minutes. At this stage it will take a



few shallow breaths and then stop, until about fifteen minutes after birth it usually commences shallow breathing again and it cries about twenty minutes after birth. From then on it breathes quite normally. From Case No. 17 onwards, I had the manner in which the children breathed, recorded and you see that it is stated at the end of each case record. Appended is a table showing the number of injections given in each case and the time it took for the child to breathe normally.

Of thirty-four children of whose condition the records have been produced, sixteen or 47% breathed immediately, whilst eighteen or 53% took an average time of twenty-three minutes to breathe well. I tried various methods of resuscitation; in some cases I cut the cord immediately the child was born; in others I waited until the child was breathing well; nothing seemed to alter the progress of events. I believe that we must get used to this condition, turn the baby on its side, keep an eye on the pulsation of the cord and wait about twenty minutes. Once the condition of apnoea is recognized as not being of serious import, I believe a great deal of the opposition to this method of treatment will be removed. I might add that, with the exception of one baby, which was a premature (eight months), all the babies after once breathing properly, gave no further trouble. I only know of one child out of the one hundred and twenty which died after leaving the hospital and that child died when two years old of convulsions.

#### Advantages.

We have a method of conducting labour, the technique of which can be easily mastered, which with

ordinary care is quite safe for both mother and child. This method has the great advantage that in the large majority the patients have no memory whatsoever of the day which most women dread above all others and in the greater portion of the remainder they only have a hazy recollection of what has taken place; nearly all declare that they do not remember suffering any pain at all. I leave it to more scientific brains than my own to decide what is the exact portion of the nervous system that has been acted on by the drugs, but apparently in some way the sensory impulses are prevented from reaching the brain and as a result of this patients treated by this method do not suffer from shock to the same extent as patients treated in the ordinary way. Patients who have passed through a long tedious labour, frequently say that they are ready to get up the next day. This feature is always remarked upon by nurses when they commence attending these patients and by the patients themselves who have had children before without the assistance of hyoscine and morphine. The labour is slightly increased in duration, but this may be accounted for to a considerable extent by the fact that the labour is allowed to take its own course, the medical attendant does not have to withstand the entreaties so frequently made by them to do something to hurry things along and to relieve them of their pains. Consequently the head has more time to mould, forceps are not required so frequently and there are not so many torn perineums and torn *cervices* to give trouble later on. Once the baby is breathing

Case No.	Number of Injections.	Time After the Morphine Injection.	Time after Birth when Child Breathed Normally.
17	1	2 hours 5 minutes .. .. .	15 minutes.
18	2	1 hour 34 minutes .. .. .	Immediately.
19	4	3 hours 50 minutes .. .. .	12 minutes (second child immediately).
20	11	.....	Immediately.
21	12	9 hours 55 minutes .. .. .	Immediately.
22	6	5 hours 15 minutes .. .. .	Immediately.
23	5	.....	23 minutes.
24	5	.....	9 minutes.
25	5	.....	Immediately.
26	5	.....	17 minutes.
27	4	3 hours 50 minutes .. .. .	5 minutes.
28	6	3 hours 40 minutes .. .. .	Immediately.
29	4	3 hours 55 minutes .. .. .	15 minutes.
30	9	7 hours 15 minutes .. .. .	Immediately.
31	5	.....	120 minutes (shallow in 20 minutes).
32	9	.....	Immediately.
33	3	3 hours 15 minutes .. .. .	Immediately.
34	6	5 hours 45 minutes .. .. .	15 minutes.
36	4	2 hours 55 minutes .. .. .	10 minutes.
37	6	6 hours 45 minutes .. .. .	Immediately.
38	3	6 hours 50 minutes .. .. .	20 minutes.
39	9	9 hours 50 minutes .. .. .	Immediately: died 2 hours later.
40	7 <sup>1</sup>	7 hours 45 minutes .. .. .	Immediately.
41	4 <sup>1</sup>	4 hours 20 minutes .. .. .	27 minutes.
42	7 <sup>1</sup>	5 hours 40 minutes .. .. .	Immediately.
43	8 <sup>1</sup>	8 hours .. .. .	Immediately.
44	8 <sup>1</sup>	9 hours 10 minutes .. .. .	25 minutes.
45	6 <sup>1</sup>	5 hours 5 minutes .. .. .	12 minutes.
46	5 <sup>1</sup>	6 hours 45 minutes .. .. .	Immediately.
47	3 <sup>1</sup>	3 hours 5 minutes .. .. .	37 minutes.
48	4 <sup>1</sup>	3 hours 35 minutes .. .. .	25 minutes.
49	6 <sup>2</sup>	5 hours 15 minutes .. .. .	17 minutes.
50	2	2 hours 35 minutes .. .. .	15 minutes.

<sup>1</sup> "Omnopon" given.

<sup>2</sup> Atropine given.



satisfactorily, it usually gives no more trouble. In fact my nurses tell me they are less trouble than the other babies. If the apneic condition is due to the hyoscine, which it probably is, the baby is in all probability protected to a certain extent from the extraneous irritation its sensory nervous system must be subjected to in the usual course of events when it has a somewhat rough passage through the pelvic canal. In breech cases the effect of the cold atmosphere upon the trunk during the birth of the child is not so likely to produce premature inspirations and thus may reduce the mortality of these infants.

I have not detected any influence on the mammary function. Nor have I seen any after effects on the mental condition of either mother or child.

Finally, I think that unless it is found that the figures published by Dr. Webb-Johnson and numerous others proving that the mortality of the children is not increased, are not proved to be false, if the only argument that can be brought against the method is that the babies are born blue. We must be prepared to offer women the benefit they can obtain from hyoscine and morphine. The number of women asking for it is increasing every year. Twenty-five years ago one heard very similar arguments that to-day are being used against hyoscine and morphine used against chloroform and now chloroform is used almost as a matter of routine during the later stage of all labours and women insist on having it administered to them unless they have been fortunate enough to have experienced the advantages of hyoscine and morphine.

#### Illustrative Case Reports.

The following case records have been selected to illustrate the types of response of the patients to the injections of morphine and hyoscine. The dose of the "Hyoscine Compound" in each was 0.011 gramme of morphine, 0.00065 gramme of hyoscine and 0.00036 gramme of atropine (see page 83). The dose of hyoscine was 0.00016 gramme.

Case VI.—Mrs. B., aged twenty-one years, was in labour with her second child on April 24, 1921. The presentation was right occipito-anterior. The duration of the three stages of labour was five hours, one hour and ten minutes respectively. The baby weighed two kilograms ( $4\frac{1}{2}$  pounds). The first injection of "Hyoscine Compound" was given at 11.45 a.m., when her pulse-rate was 104. Injections of hyoscine were given at 12.40 p.m. and 1.40 p.m. The child was born at 3 p.m. The patient suffered from cardiac disease in the shape of mitral stenosis and regurgitation. She was in hospital because compensation had broken down. One cubic centimetre of "Pituitrin" was given fifteen minutes before the birth of the child.

This case is entered as a "complete success."

Case XII.—Mrs. S., aged thirty-three years, was in labour with her first child on June 1, 1921. The presentation was right occipito-anterior. The duration of the three stages of labour was twelve hours, two and a half hours and fifteen minutes respectively. The baby, a boy, weighed 3.8 kilograms ( $8\frac{1}{2}$  pounds). Forceps were applied at the end of the second stage. An injection of "Hyoscine Compound" was given at 11.55 a.m., when the pulse-rate was 100. Hyoscine was injected at 12.45 p.m., 1.45 p.m., 2.45 p.m., 4 p.m., 5 p.m., 6.20 p.m., 7.20 p.m. and 8.20 p.m. The pulse-rate at the time of the successive injections was 88, 88, 90, 88, 88, 88, 88 and 90. A catheter was passed at 4 p.m. Severe pains brought the patient round at the end

of the second stage for a few minutes. Chloroform anaesthesia was then induced. This produced an islet of memory and she imagined that she felt more than she did. The chloroform slowed the pains and forceps were applied.

This case is entered as a "partial success."

Case XXI.—Mrs. A., aged thirty years, was in labour with her second child on September 27, 1921. The presentation was right occipito-anterior. The duration of the three stages of labour was nine hours, one hour and ten minutes respectively. The baby, a female, weighed 3.8 kilograms ( $8\frac{1}{2}$  pounds). "Hyoscine Compound" was injected at 4.45 a.m., when the pulse-rate was 88. Eleven injections of hyoscine were given at 5.45, 6.45, 7.35, 8.35, 9.30, 10.30, 11.30 a.m., 12.30 p.m., 1.35 and 2.35 p.m. respectively. The pulse-rate at 5.45 a.m. was 80, at 8.35 a.m. it was 88 and at 9.30 a.m. it was 80. The baby was born soon after the last injection and breathed immediately. The patient is a very big woman. She did not appear to be completely under the influence of the drug when the memory test was applied, but afterwards she stated that she knew nothing at all about the labour.

This case is entered as a "complete success."

Case XXVIII.—Mrs. Sh., aged twenty-one years, was in labour with her first child on December 16, 1921. The presentation was right occipito-anterior. The duration of the three stages of labour was fourteen and a half hours, one and a half hours and ten minutes. The baby, a male, weighed 3.75 kilograms ( $8\frac{1}{2}$  pounds). "Hyoscine Compound" was given at 7.40 p.m., when the pulse-rate was 78. Hyoscine was injected at 8.30, 9.20, 10.20, 11.10 p.m. and 12.22 a.m. The pulse-rate at 10.20 a.m. was 80, at 11.10 a.m. it was 84 and at 12.22 p.m. it was 82. The child was born at 1.20 a.m. and cried immediately. The patient stated that she was in a doze, but that she could not cry out. She felt all the pains. She is a very big woman. The patient has recently had another child, but did not have injections of hyoscine and morphine. The three stages of labour lasted eight hours, twenty minutes and fifteen minutes respectively. Chloroform was administered during the last half hour. "Pituitrin" was given and the child was born twelve minutes later. She cried out a great deal until chloroform was given. She stated that she felt the pains much more than she did in her first labour.

This case is entered as a "failure."

Case XXXII.—Mrs. N., aged thirty-two years, was in labour with her first child on January 19, 1922. The presentation was by breech. The first two stages of labour lasted thirty-three hours and the third lasted fifteen minutes. The baby, a boy, weighed 3.29 kilograms ( $7\frac{1}{2}$  pounds). "Hyoscine Compound" was injected at 3.10 a.m., when the pulse-rate was 68. Three injections of hyoscine were given at 4, 5 and 6 a.m. and the pulse-rate at the same times was 70, 66 and 66. As the pains had ceased by 6 a.m., the injections were stopped. Sixteen hours later, that is at 10 p.m., a second injection of "Hyoscine Compound" was given and hyoscine was injected at 10.50, 11.50 and at 12.40 and 2.25 a.m.. At 11.40 p.m. the membranes were ruptured. The child breathed well at once. The patient was a very nervous woman. She was noisy during the pains, but slept well in the intervals and stated afterwards that she had felt no pain at all after the first injection of both series.

This case is entered as a "complete success."

Case XXXV.—Mrs. M., aged thirty-eight years, was in labour with her first child on March 3, 1922. The presentation was right occipito-anterior. The first stage of labour lasted three days and the second four hours. The placenta was removed manually. The baby was still-born. Twenty-four hours before delivery the fetal heart could no longer be heard. There was great delay in the first stage owing to rigidity of the *os uteri* and to the small amount of *liquor amnii*. Forceps had to be used at the end of the second stage and the child was delivered with great difficulty. The manual removal of the placenta was followed by hæmorrhage. The patient was very exhausted after the birth. She died on the twelfth day of septicæmia. "Hyoscine Compound" was injected at 7.10 p.m. on March 1 and injections of hyoscine were given at 8, 8.50, 9.50,

10.50 and 11.50 p.m., at 1.0 a.m. on March 2, at 2, 4, 5, 6, 8.15, 9.15, 10.15 and 11.30 a.m., at 12.45, 2.15, 5.45, 6.50 and 8.25 p.m. The pulse-rate at 7.10 p.m. on March 1 was 76. It remained at about this level until 5.45 p.m. on March 2, when it was raised to 108. An hour later it was 112 and at 8.25 it was 104. The hyoscine injections were then stopped as the pains had ceased. Labour did not recommence until 6 p.m. on March 3. The patient slept well during the night of March 2 and went about as usual on March 3. When the labour pains returned she was kept under light chloroform anaesthesia. A still-born fetus was delivered by forceps at 11.30 p.m. Cocaine was applied locally and chloral was given internally in the endeavour to overcome the rigidity of the os uteri on March 2, 1922.

This case is entered as a "failure."

Case XXXIX.—Mrs. D., aged thirty-nine years, was in labour with her first child on April 24, 1922. The presentation was right occipito-anterior. The three stages of labour lasted eleven hours, three hours and twenty minutes respectively. The baby, a girl, weighed 2.8 kilograms (6½ pounds). "Hyoscine Compound" was given at 2.20 a.m., when the pulse-rate was 60. Hyoscine was injected at 3.10, 4, 5, 6, 7, 10, 8.10, 9.30 and 10.30 a.m. As the labour was making very slow progress and the pulse-rate was increasing no further injections were given. The pulse-rate was 78 at 7.10, 98 at 8.10, 104 at 9.30 and 112 at 10.30. Light chloroform anaesthesia was maintained after the second stage had lasted three hours. Forceps were applied and the child was delivered at 12.10 p.m. The child breathed freely at birth, but died two hours later. The mother had suffered severely from persistent vomiting up to the end of the fifth month and had been treated for albuminuria for five weeks preceding the confinement.

This case is entered as a "partial success."

#### A SIMPLIFIED METHOD OF PREPARING A MODIFIED ROMANOWSKY BLOOD STAIN.

By D. L. BARLOW, M.D., B.S. (Adelaide),  
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THERE are numerous methods of preparing stains for blood films by utilizing the principle introduced by Romanowsky. He improved on the eosinate of methylene blue which forms the basis of Jenner's stain by obtaining a polychrome mixture from a solution of methylene blue and adding to the latter a solution of eosin. The chief differences in the various methods since introduced lie in the manner of production of the polychrome blue. The chemical basis is a partial oxidation of methylene blue in an alkaline solution with the formation of several compounds the most important of which is methylene azul. This is the dye which gives the deep purple nuclear staining in well stained blood films and also stains the azurophile granules of lymphocytes and large mononuclear cells. It is noteworthy that Jenner's stain fails to demonstrate these granules.

The previously described methods of treating the methylene blue before adding the eosin are all lengthy and more or less troublesome. Recently a new process for the preparation of polychrome blue for tissue-staining in immediate-section work has been described by Terry<sup>(1)</sup> and I have found that by using the same method in making a stain for blood, very satisfactory results are obtainable.

The technique is as follows: In one hundred cubic centimetres of distilled water is dissolved one

gramme of pure methylene blue and 0.5 gramme of anhydrous sodium carbonate. The solution is then brought to boiling point in a porcelain dish (about ten centimetres in diameter) and kept gently boiling for two and a half minutes. It is then cooled and five hundred cubic centimetres of a solution of yellowish water-soluble eosin in a dilution of one in 1,000 are slowly added. A precipitate forms and is separated off by filtration and dried.

A half saturated solution of this in pure methyl alcohol (free from acidity and acetone) is used for staining blood films in the following manner: Pure stain is allowed to act on fresh unfixed films for one and a half minutes. It is then diluted with two volumes of distilled water in a glass dish and allowed to remain for three minutes. The films are finally washed with distilled water.

The purity of the methyl alcohol and distilled water used is an important factor, as the polychrome stain loses all its best qualities if dissolved in an alcohol containing the least trace of impurity. Distilled water as ordinarily obtained commercially is too acid for use if the best results are to be achieved. A useful test may be made by dissolving a crystal of hæmatoxylin in a test tube of the distilled water and noting whether the brownish solution turns purple in a few minutes or not. If it does not, there is a trace of acid in the water and just sufficient weak sodium hydroxide should be added to the bulk to produce the above colour.

It has been found that the Romanowsky stain made as herein described gives excellent results. It is particularly strong in the azul compound and thus shows up the azurophile granules of lymphocytes and large mononuclear cells very well and stains deeply the nuclei. The so-called irritation forms of lymphocytes are sharply differentiated from the remainder by their deep blue staining protoplasm and in leucæmic films the various stages of marrow-cells are well brought out. The chief advantages claimed for this stain are its ease of production and its richness in polychrome qualities.

#### Reference.

(1) Terry, B.T.: "The Rapid Preparation of Polychrome Methylene Blue Stains, et cetera," *The Journal of Laboratory and Clinical Medicine*, Volume VIII., No. 3, 1922.

### Reports of Cases.

#### ENCEPHALITIS LETHARGICA.

By C. A. Hoag, M.B., Ch.M. (Edinburgh),  
Medical Superintendent, Mental Hospital, Parramatta.  
And a

#### Pathological Report

By OLIVER LATHAM, M.B., Ch.M. (Sydney),  
Pathologist to the New South Wales Department  
of Mental Hospitals.

THE following history is thought worthy of report. The condition from which the patient was suffering, was diagnosed as *encephalitis lethargica* on the day after his admission to hospital. He was therefore observed from this

point of view for twenty-five days. The findings of Dr. Latham as recorded in his report are appended.

#### Personal History.

X.Y., *etatis* twenty-nine years, had been married for three years. He was a native of New South Wales. His wife had had no children and no miscarriages. By occupation he was a wood machinist at a piano factory. Before marriage the railway department had refused to pass him into the service, on account of his vision in the left eye not being up to standard. His father stated that up to the time of his marriage he had been robust in health and beyond the fact that both before and after his marriage he had complained of pain in the back and had been treated for lumbago, his history up to this time showed nothing of note. His wife whose acquaintance with him extended back to ten years before marriage, stated that he was a most temperate man and never drank or smoked, but that during the last two years he complained from time to time of indigestion, but always had a good appetite.

There was no history of alcohol, epilepsy, insanity, syphilis, tuberculosis, infectious disease, headache, nausea or vomiting, or any other ascertainable symptom of ill-health. His wife stated that she always thought his right eye was red, although he never had any treatment for his eyes. In October, 1922, he met with an accident at the works in which he lacerated his right hand with a saw. As a result it became necessary owing to septic trouble to amputate the right index finger. The hand healed well and in April, 1923, there were no unhealthy signs.

Six months previous to his illness there was a domestic occurrence of an unfortunate nature among his relatives and another one of a similar illegitimate nature in another relative culminated on the Sunday before his illness. His wife stated that these events had not unduly worried him. He had always been, she said, of a rather excitable nature. He was a good workman and had no financial worries. He told his wife that nearly all the workmen at the factory had been suffering from influenzal colds. A few days before his illness he mentioned to his wife that he had several times wept at the factory without any cause. This fact is of interest because in the prodromal period these patients are said often to be in a highly emotional state suggestive of hysteria or the depression of melancholia.

#### Family History.

The family history contained nothing worthy of note.

#### Onset of Illness.

On April 17, 1923, the patient was apparently well and worked all day. On the evening of that day he and his wife drove to see some friends at Flemington where he sat and talked and appeared all right. He arrived home at 10.30 p.m. and went to bed in his usual health. About an hour later he got up and complained of indigestion pains in his chest. He took some liver pills, but remained stupid, restless and sleepless. That night he did not sleep and was continually up and out of bed. On April 19, 1923, his eyes became affected and he became intolerant of light and had lachrymation. He said that he was losing his sight and his wife bought him some smoked glasses. His doctor saw him that day and ordered him to the hospital realizing that his condition was serious. Here he became delirious, ran away from the hospital and was brought back in an excitable state. All this time he had delusions that people were trying to do away with him.

On April 20, 1923, I was asked to see him in consultation. He presented the following objective signs and symptoms: He was lying in bed in the hospital with a policeman standing by to help.

He lay on his back with his upper eyelids covering the eyeballs as if in sleep and he was muttering to himself in a drowsy kind of delirium. The delirium was of an occupational type and concerned principally horses and motor cars. His wife stated that he was specially interested in the former. His arms were adducted and his forearms were flexed across the chest. His hands were continually occupied in a purposeless movement of twisting the bed-clothes into a tag and then dragging them higher towards his neck. The lower limbs from time to time showed

movements. These could not be described as tremor or twitching, as choreic or choreiform movements, nor were they of the nature of either tonic or clonic spasm nor were they myoclonic or like Dubini's symptom. They were rather automatic, coarse and large in amplitude. The feet were rolled in or out more or less rhythmically on the heel as a fulcrum in a manner similar to the head-rolling movements of idiots. The patient could be roused quite easily from his delirium and was able to answer relevantly and coherently questions put to him. His answers, however, were not accurate. He did not realize when roused the exact nature of his surroundings.

#### Condition on Examination.

On examination both his ocular conjunctivæ were in a state of intense injection (not due to conjunctivitis) and on the left side there was internal strabismus of an irritative nature. This squint was of a concomitant nature and the movements of the eyes were executed in any direction asked. Both eyes showed a condition of coarse nystagmoid jerks, not only from side to side but also and more especially in a vertical direction. Even when roused and while answering questions these nystagmoid jerkings which continued till his death, still went on. The movements of the eyes in no way resembled the twitchings of the eyeballs found in epileptiform convulsions whether due to general paralysis of the insane, *status epilepticus* or uræmic convulsions *et cetera*. The pupils were moderate in size and beyond a condition of hippus showed nothing abnormal in their reactions. When roused from his delirium the patient would occasionally get into a sitting position in bed and presented rather a striking aspect. With the blue of his eyes glistening brightly in the midst of the very red and injected ocular conjunctiva he would stare into vacancy past those standing round his bed and be quite oblivious of their presence. He would stretch out his hands and talk to hallucinatory visions in front of him. His delirium, however, was not of a violent motor type nor very noisy and he was now and afterwards easily made to lie down in bed. He would then relapse into his sleepy lethargic state of delirium which did not deepen into stupor or coma till four or five days before his death.

Physical examination showed that his temperature was 37.2° to 37.8° C. (99° to 100° F.). The pulse-rate was 118 to 120 and the blood pressure and pulse tension were low. There was a slight systolic febrile impurity at the mitral and aortic valve areas of the heart and no eccentrication of the second sound could be heard. The lungs were normal. The abdominal organs presented no abnormality. There was a slight trace of albumin in the urine and owing to retention the catheter had to be used.

The plantar reflex was flexor in type. There was slight ankle clonus on the left side. Both knee jerks were very active. Neither Kernig's nor Brudzinski's signs were present. There was no contralateral reflex and no neck rigidity or retraction. The other reflexes showed nothing of note.

There was at this time no rash. The spleen was not enlarged and the tongue was moist and coated with a thick white fur.

#### Diagnosis.

His condition as he lay in bed suggested as possibilities to be considered and if possible excluded, alcoholism, tuberculous meningitis, cerebro-spinal meningitis, cerebro-spinal syphilis, general paralysis of the insane, cerebral tumour or abscess, septic meningitis, the delirium of typhoid fever, malaria, malignant endocarditis, botulism, cerebral influenza, uræmia and lastly *encephalitis lethargica* and acute delirious mania.

Alcoholism was excluded by the definite statement of his wife as to his habits, although the sleepy kind of muttering was not unlike that of a drunken man, and by the fact that there was no history of his having taken any alcohol medicinally. Tuberculous meningitis was considered unlikely on account of his previous good health and absence of any signs of tuberculosis elsewhere in the body. It may be said here that tuberculous meningitis<sup>(1)</sup> is one of the diseases said to be often mistaken for *encephalitis lethargica*. Cerebro-spinal meningitis was excluded by the absence of all the signs generally found in that disease, together with the absence of any slowness or irregularity in the pulse and by the fact that fluid drawn



Fig-1.

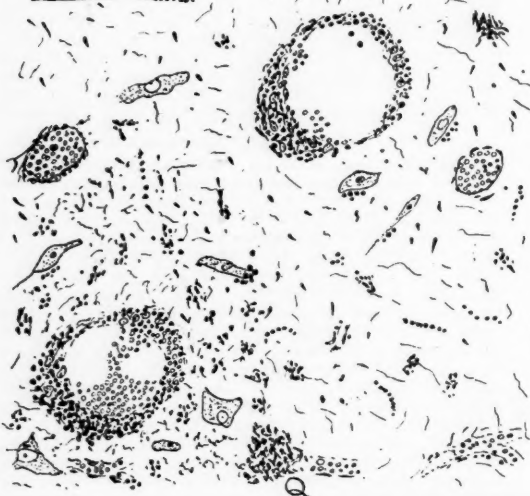


Fig-2

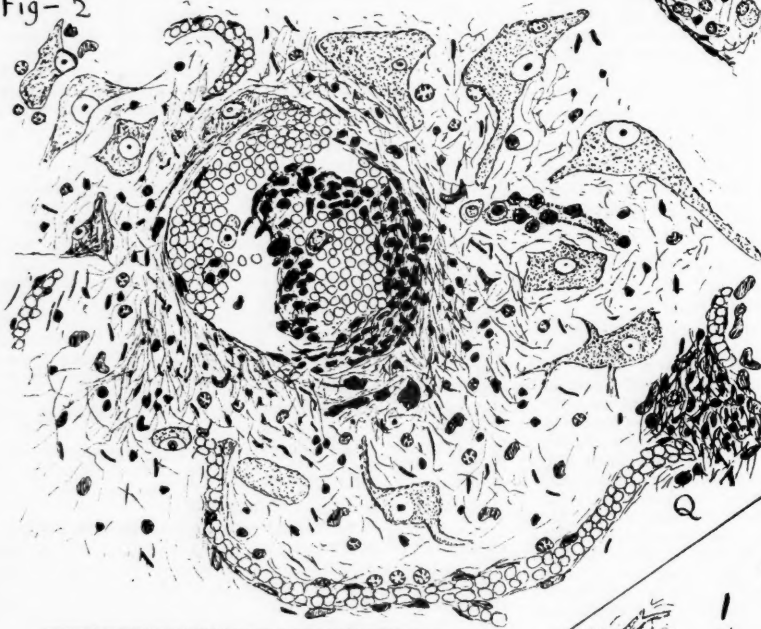


Fig 3

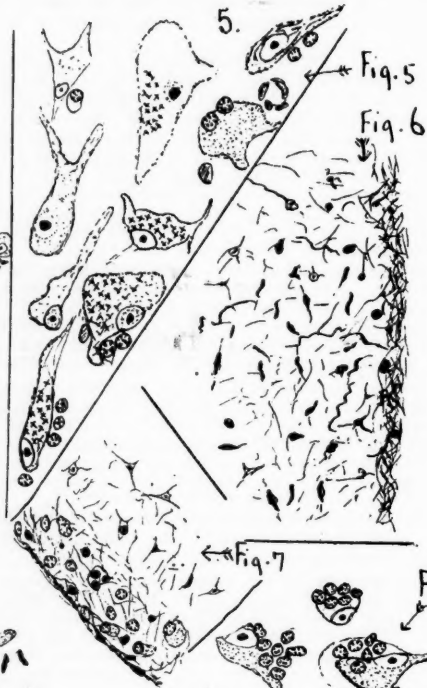
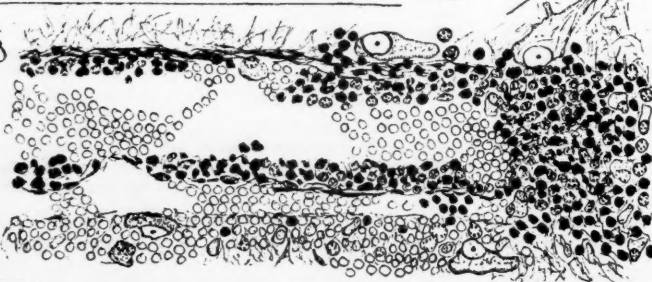


Fig.5

Fig.6

Fig.7

Fig.4

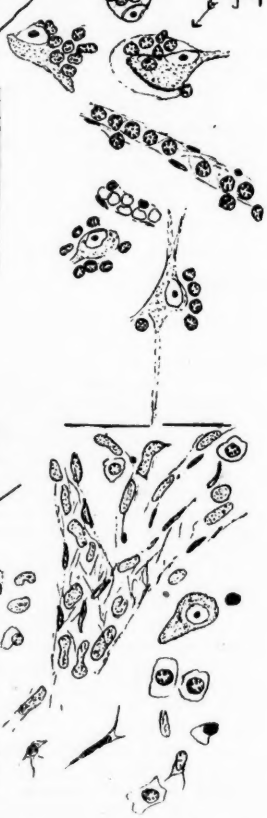


Fig.8.



by lumbar puncture showed nothing abnormal to the naked eye at that time. This was later confirmed by the absence of cells, by its clearness, by its reducing the copper in Fehling's solution, by the absence of globulin and by its yielding no germs on culture. It was not under increased pressure at this time. Cerebro-spinal syphilis was excluded tentatively because of absence of a history and the condition of the spinal fluid which later also did not yield a reaction to the Wassermann test, and the very acute onset from a picture of seemingly perfect health. For similar reasons general paralysis of the insane was put aside.

Tumour of the brain, which *encephalitis lethargica* is said to resemble closely in some instances,<sup>(1)</sup> was excluded on account of the previous good health and the absence of any of the general or localizing signs of tumour. It was at the same time borne in mind that a glioma hitherto latent can by a hæmorrhage into its substance give rise to sudden and unexpected symptoms. Later also the optic discs were found to be normal.

There being no apparent causes for abscess of the brain, that was excluded. Septic meningitis was considered unlikely in the absence of any evidence of a cause.

The delirium of typhoid was considered, but the sudden onset, the absence of rash or enlarged spleen, the pulse-rate, the condition of the tongue were thought to exclude it. This was later confirmed by the repeated failure of agglutination in the Widal test.

Malaria was excluded, but this exclusion was later confirmed by several examinations of the blood for the parasite.

As there was a soft febrile impurity in the heart sounds, malignant endocarditis was considered and excluded. The failure of culture results and after history confirmed this exclusion.

Botulism was thought to be excluded because in it the mind is usually clear and his wife stated that he had a particular dislike to tinned food and none had been consumed.

Cerebral influenza causing meningeal symptoms was thought to be out of the picture.

Uræmia was excluded because of the absence of any conformatory symptoms, either of acute parenchymatous or chronic nephritis.

The condition was considered to be probably one of acute delirious mania, but next day on his arrival at the mental hospital my mind was focussed on *encephalitis lethargica*. Against acute delirious mania was the character of the delirium, the readiness with which the patient took all

nourishment offered him, the condition of the tongue and the absence of any precedent mental symptoms such as epileptic insanity, alcoholism, toxic or exhaustive psychoses *et cetera* as well as the onset in the midst of apparent health. The points which seemed to favour *encephalitis lethargica* were several in number. In the first place many of his fellow workmen were suffering from colds, probably influenzal. Secondly there was the character of the nystagmoid movements said to be unlike that met with in any other disease, and due probably to irritative lesions of the nerves. Thirdly there was the peculiar character of

the delirium from which the patient could be roused to answer intelligently. This was associated with insomnia and occupational delirium. The periods of lethargy between the delirious periods are said to be associated with obstruction of the *iter*.<sup>(2)</sup> Fourthly the face was mask-like and lastly, the mental disorientation resembled that of chronic alcoholism.

#### Condition on Admission to Hospital.

On April 21, 1923, the patient was brought in an ambulance to the mental hospital with notes to the effect that he was restless, noisy, delirious, calling out loudly, trying to get out of bed, also that he imagined that a boy in the opposite bed was dead and that he saw red motor cars and people he did not know saying that sometimes they were there and sometimes they were not there. He imagined that people were trying to do away with him and poison him and required constant restraint to keep him quiet.

On admission to the mental hospital he was in a state of low muttering delirium in which he tried to grasp imaginary objects. His attention could be attracted and he answered questions sensibly, but soon sank back into his condition of quiet delirium in which there was no difficulty in keeping him in bed even up to the fatal termination. He called out but not

loudly to imaginary persons and his feet were in a state of automatic restlessness as before described. His delirium was still occupational and his hands were continually twisting the bedclothes up in a purposeless way. On this day examination of the throat showed at the back of the soft palate on both outer sides with intervening healthy palate three (on each side) superficial discrete oval, very shallow ulcers covered with a whitish exudation. Their peculiar symmetry on each side was interesting and they suggested herpetic ulcers and the question arose whether they were trophic or whether from them the original infection

FIGURE I.

Zeiss lens AA 2/3" and Watson's drawing eyepiece 6 (*camera lucida*). Lower power view of "Nissl" preparation from near median raphe of the pons beneath upper part of fourth ventricle. Shows congestion of all the blood vessels, collections of mononuclear cells around the blood vessels (cuffing—lymphorrhages), numerous nuclei especially near the larger blood vessels and belonging to newly-formed neuroglia cells, lymphocytes, plasma cells and endothelial cells together with a few fibres; certain neuroglia cells with rod shaped nuclei (*Stabzellen*) and small plaques of sclerosis composed of neuroglia cells, mononuclear and endothelial cells as at Q., so common in "X" disease and general paralysis of the insane.

FIGURE II.

This and the remaining figures taken with Voigtländer 1/4" lens and the same drawing eyepiece. Small venule from the pons, showing cuffing, also a hæmorrhage into the adventitial sheath and surrounding brain tissue. Note the close association with many important nerve cells and the capillary with plaque on it....Q.

FIGURE III.

Longitudinal section of a venule beneath the fourth ventricle and just posterior to the nuclei pontis. Note the hæmorrhage and lymphorrhage into the surrounding brain engulfing the nerve cells as in polio-myelitis.

FIGURE IV.

Various nerve cells showing the phenomena of neurophagia and satellitosis, in some cases the mononuclear cells seem to collect in an artificial place round the nerve cells. Note the "lines" of nuclei follow the course of capillaries. These "lines" are numerous, especially in the central ganglia.

FIGURE V.

Types of degenerated nerve cells mostly taken from near Figure III. In many cases the nuclei were eccentric, at times quite extruded. Many had lost their shape, were full of light yellow pigment, while their neighbours were quite normal.

FIGURE VI.

The neuroglia especially in the roof of the *iter* and under the various *ependyma* was beginning to hypertrophy, just small cells and *Stabzellen* with a few fibres. No giant-celled neuroglia cells with thick processes were seen, the pathological process being too recent.

FIGURE VII.

The cortex cerebri also shows a similar neuroglial proliferation and the pia-arachnoid holds many mononuclear cells in its meshes.

FIGURE VIII.

Blood vessel in the region below the *iter*. Note the new blood vessels budding off and proliferation of "endothelial" cells at the top, a feature noted by Da Fano in experimental encephalitis, while at the bottom three small neuroglia cells and three or four rod shaped cells or *Stabzellen*.

The pathological lesions found can best be explained on the assumption we are dealing with a reaction of nervous tissue to the toxin of an organism, such as that which produces polio-myelitis, X-disease and in cases where the patient has lived long enough even resembling closely that seen in general paralysis of the insane and sleeping sickness, spirilosis and trypanosomiasis.

may not have started and travelled up the fifth nerves. Swabs from these patches among other organisms yielded those of Vincent's angina, but perhaps this was a super-added infection. It would be interesting to know if these patches are found in any other patients in this disease.

In the eyes the conjunctival injection became worse and at first small subconjunctival hemorrhages occurred. Later both ocular conjunctivæ became ecchymotic resembling the appearance seen in fracture of the base of the skull. The left internal squint and the nystagmoid movements still continued. The tongue still had a moist white fur. The circulation was rapid and a febrile impurity was heard in the mitral and aortic areas. Examination of the urine and of other organs revealed no abnormality.

#### Subsequent Progress.

The sleepy state of delirium did not change much and up till five days before his death he could be roused to answer questions intelligently. At this date, however, he became drowsy and hard to rouse and answered with difficulty. Later he could not be roused. Though drowsy he did not get any natural sleep and slept badly in spite of hypnotics. He took his nourishment well and willingly and showed no difficulty in swallowing till four days before death. Attacks of sweating took place once or twice daily. No rigors occurred. When asked he daily complained of fugitive pains in various parts of his body, now in one part, now in another, but these pains did not rouse him from his stupor and lethargy. On the day after admission, ulcers appeared on both corneæ. The ulcer on the left cornea was centrally placed and irregularly rounded, the one on the right was linear and trough-like. The optic discs were normal. The day after admission to mental hospital a macular, morbilliform rash appeared on the chest and back. It was reddish and not petechial. The ear drums which obtain their maximum blood supply from the external carotid artery, were both healthy and translucent and were in striking contrast to the ecchymotic ocular conjunctivæ whose maximum blood supply is from the ophthalmic branch of the internal carotid artery. Finally his stupor and lethargy became deeper, his pulse became weaker and after an illness of twenty-seven days he died.

#### Pathological Examinations.

Lumbar puncture was performed in all seven times as shown on the clinical chart. The samples obtained on April 21, 22 and 29, 1923, were submitted to examination. Increase of pressure was noted on April 22 and slight increase on April 29. In no instance was any turbidity noted. On April 22 one polymorpho-nuclear leucocyte and four lymphocytes were found. On April 29 two lymphocytes were found. A slight cloud was obtained with caustic soda and salicyl-sulphonic acid in the fluid obtained on April 22. Reduction occurred with Fehling's solution in the fluids obtained on April 21 and 29. No growth was obtained on culture. The specimens obtained on April 22 and 29 were submitted to the colloidal gold test. An indefinite response was obtained to this test; this is not uncommon.

The blood count on April 24, 1923, was normal and no malarial parasites were found. No growth was obtained on blood culture. The serum yielded a partial reaction to the Wassermann test. On April 30, 1923, no agglutination was obtained with the Widal test and the serum failed to yield a reaction to the Wassermann test.

A throat swabbing taken on April 24, 1923, revealed the presence of staphylococci and diphtheroid bacilli on a slide. A growth of *Staphylococcus albus* was obtained on culture. On April 27, 1923, a stained slide showed the presence of staphylococci and innumerable diphtheroid (Hoffmann's) bacilli.

#### Treatment.

Hypnotics, mercurials, "Urotropin" and lumbar puncture were all tried, but none were of any avail.

#### Autopsy Findings.

The body was well nourished and except for some slight thinness of the face there was no apparent loss of flesh.

*Post mortem* lividity was well marked and appeared immediately after death. The lungs, heart and liver were all perfectly healthy to the naked eye. The spleen was not abnormal, pancreas and kidneys were healthy. The capsule of kidney stripped easily and no sign of disease was apparent. *Dura mater, pia mater* and arachnoid appeared healthy. There was slight excess of cerebro-spinal fluid and some congestion of the veins of the brain. There was no sign of lateral sinus or ear trouble. There was no sign of fracture, tumour, abscess or meningitis. There was no adhesion of membranes, decortication nor any granular ependyma suggesting general paralysis.

#### Comment.

The onset of nervous symptoms was sudden and without any other previous illness. Simple catarrhal conjunctivitis and in some instances tonsillitis and simple sore throat are said to be amongst the first symptoms. In more definite infections pains in eyes, blurred vision, photophobia and heaviness of the eyelids are complained of in the early stages.

In the prodromal period there is often a highly emotional state and the patient may show without apparent cause symptoms which might be labelled hysteria. In some there may be depression suggestive of melancholia. Muscular pain, hyperæsthesia and difficulty of swallowing occur and the common localizing symptoms are ophthalmoplegia, strabismus and nystagmus. Irregular non-rhythmic spontaneous movements of the face, trunk and limbs, resembling those in thalamic affections occur together with pain, tingling and numbness in the limbs. These symptoms of unprovoked weeping, irregular twisting movements of limbs and paroxysmal pain are said to be due to lesions affecting the fillets in the region of the thalamus, sub-thalamus and red nucleus. In some patients sweating of the skin with rashes of miliary, erythematous, petechial or herpetic nature occur. Many of these signs were shown by the patient X.Y.

It is suggested that the invasion took place by the lymphatics. In connexion with the herpetic ulcers the occurrence of herpetic encephalitis in animals is interesting.

#### Pathological Report.

The *post mortem* examination on this patient was performed eight hours after death and the observation afterwards of some Nissl granules in some of the nerve cells of the cord would suggest that the nervous tissues were not affected by *post mortem* changes. Apart from a slight excess of cerebro-spinal fluid nothing abnormal was noted about the nervous system. There was no hyperæmia, but on making sections of the midbrain several minute linear hemorrhages were noted and some engorgement was noticed. The brain and part of the spinal cord were placed in 10% formalin solution. Portions were afterwards placed in 95% alcohol solution and also in Müller's fluid. Sections were obtained by freezing in dextrin. They were chiefly stained by Nissl's method, hematoxylin and eosin and for any "bodies" by polychrome methylene blue after the method of Da Fano.

Speaking generally the main departures from the normal were noted in several situations. In the *pia arachnoid mater* everywhere mononuclear infiltration with some hemorrhages were seen. The blood vessels were everywhere more or less engorged. Sometimes hemorrhages into the adventitial sheath were found, sometimes these hemorrhages had occurred into the surrounding tissues. The perivascular sheaths were often distended with mononuclear leucocytes of various sorts, plasma cells, lymphocytes and polyblasts. Polymorpho-nuclear leucocytes were rarely seen. Many new blood vessels were obvious and of these many had ruptured. The proliferation of the endothelial cells was conspicuous and added to the cellular picture of the sections. The fibres of the neuroglia were hardly more obvious than usual save in the roof of the *iter* and near the various ependyma, but neuroglia nuclei were exceedingly abundant not only as rounded dots but very often as little rods, *Stäbchen*, especially near the blood vessels, ependyma and associated with endothelial cells to form little islets of sclerosis so commonly seen in general

paralysis of the insane. The engorged capillaries formed a very characteristic picture winding in between the large cells composing various nidi in the midbrain.

On comparing the nerve cells generally with some healthy anterior cornual cells in the upper part of the cord, they appeared to be affected by some toxin on account of the alteration in contour and staining properties. As a rule striking changes were not evident, but on going over hundreds of cells distinct alterations were noted on comparing the nerve cells from different parts with one another. While the striking pictures often visible in acute poliomyelitis<sup>(1)</sup> was not in evidence, yet there were noted in the aggregate innumerable nerve cells which had lost their sharp contour, showed axonal degeneration with eccentric nuclei or even complete extrusion of the nucleus and loss of chromatin elements as well as of Nissl bodies. Some cells were more pigmented than their neighbours in the same nidus. Neurophagia was common. While the whole cranial contents showed evidences of the affection from the cortex to the cerebellum, cord and cranial nerves, yet it must be admitted the aggregation of mononuclear elements, engorgements, hemorrhages, sclerotic patches and nerve cell affection seemed most prominent in the upper portion of the *pons varolii* and beneath the *iter*, especially the dorsal parts and median *raphé*, the parts about the *substantia nigra*, red nuclei and the lenticular nuclei. The large cells of these central nuclei seemed particularly prone to neurophagia, with early interstitial reactions in and about the blood vessels. Such a picture could be imagined as the result of an acute attack of parenchymatous syphilis; it certainly was reminiscent of that obtaining in early cases of "X" disease.<sup>(2)</sup> In considering this condition it is important to remember the recent work of Da Fano<sup>(3)</sup> and many others on the cerebral and brain stem reaction in rabbits to experimental infection with fluid from herpetic vesicles and also with emulsions of brains of animals so infected and with emulsions of brains of those dead of *encephalitis lethargica* even after preservation for several months on ice or in glycerine. This work and the fine results obtained several years ago in the New South Wales Bureau of Microbiology with experimental "X" disease in various animals leave little room for doubting that this disease is caused by an organism having many affinities with that causing poliomyelitis. This organism only tends to affect the upper part of the nervous system and is more virulent and often perhaps quicker in its spread throughout the nervous system. Da Fano and others describe small coccal and diplococcal shaped bodies in the nerve cells *et cetera* which are not found in normal individuals and may be products of the disease. As these bodies stain by Giemsa and other protozoal stains, Da Fano considers the possibilities of their being of the nature of infective bodies. They have certainly been shown quite easily in the fluids of herpetic vesicles. Anyhow, these experimental studies are of considerable help to pathologists in understanding the nature of the reactions so commonly observed in *encephalitis lethargica*. If in any one field the damage to the individual elements seems slight, we must understand that some damage appears to be demonstrable over widespread areas including many groups of cells of paramount importance to vital functions. We were not able to demonstrate these bodies in the above sections, although a few cell inclusions were stained the nature of which could not be explained.

#### References.

- <sup>(1)</sup> Bramwell, Edwin, *The British Medical Journal*, October 22, 1921, pages 648 to 651.
- <sup>(2)</sup> E. Farguhar Buzzard, "The Pathology of the Nervous System."
- <sup>(3)</sup> Matthewson, T. H. R. and Latham, O., "Acute Encephalitis of Unknown Origin," *THE MEDICAL JOURNAL OF AUSTRALIA*, October 27, 1917, page 352.
- <sup>(4)</sup> Da Fano, C., "Herpetic Meningo-myelitis in Rabbits," *The Journal of Pathology and Bacteriology*, Volume XXVI, January, 1923.
- <sup>(5)</sup> The Eighth Report of the Microbiological Laboratory, New South Wales Government, 1917.
- <sup>(6)</sup> Tilney, F. and Howe, H. S.: "Encephalitis Lethargica."

## Reviews.

### BACTERIOPHAGE.

THE phenomenon of serial transmissible bacteriolysis, first observed by Twort in the course of his studies on filter-passing virus, has been brought prominently before the scientific world within the last few years. It has led to considerable controversy, owing to the almost revolutionary ideas in connexion with the nature of the phenomenon expressed by d'Herelle. Twort, while hesitating to give any definite interpretation, enumerated several hypotheses which he considered to be the possible explanations of the phenomenon among which was the suggestion that it may be due to "an acute infectious disease of the organisms."

In "The Bacteriophage" the various communications by Dr. F. d'Herelle on the subject as well as summaries of articles of other workers have been collected and co-ordinated. The book provides a vigorous enunciation and defence of the hypothesis propounded by the author that the phenomenon is due to a parasitization of bacteria by an ultra-microscopic organism, normally an inhabitant of the intestinal tract. He calls this organism *Bacteriophagum intestinale* d'Herelle or for short the bacteriophage. His theory is thus an elaboration of one of the hypotheses first elaborated by Twort, though the author points out that he was led to his conclusions only after a close investigation extending over two years, an investigation commenced "without any preconceived ideas regarding the nature of the causal principle involved."

His experimental work and the deductions drawn therefrom which led to his conception of the nature of the mechanism underlying the process, are given in Part I. of the book. Having arrived at a definite conclusion, that the phenomenon is due to a parasitization of bacteria with the ultra-microscopic bacteriophage, d'Herelle has carried his investigations a stage further and in Part II. he has applied this to a study of the rôle of the bacteriophage in immunity.

Dr. d'Herelle has attacked the problem in a whole-hearted manner and from various aspects. The vast amount of investigational work carried out is indicated by the numerous experiments quoted in support of his hypothesis. The reader may, however, find it difficult to reconcile his deductions from these experiments with the author's reasoning. Though there is much to be said both for and against his hypothesis, the reader of his book cannot escape being impressed by the fact that the author has been influenced by the results of investigations taken *en masse* and covering a vast field of operation in arriving at his conclusions, while many of those who have criticized his work, have done so only after viewing the question from a limited aspect.

Dr. d'Herelle first described the methods of technique for the isolation of the ultra-microscopic organism and for enhancing its virulence. As he points out every bacteriological laboratory possesses the necessary equipment for this procedure. The active factor in the production of the phenomenon of transmissible bacteriolysis has, indeed, already been recovered by many workers interested in the subject. The descriptions given of the methods of enumeration of the "bacteriophagous ultra-microbe" and its multiplication as well as the experiments quoted are less convincing. The author's account of the recognition of colonies of bacteriophage and of the counting of these colonies bespeaks a vivid imagination and a tendency to confuse facts and deductions. To some extent the translator is to blame if the reader becomes impatient with the author in certain passages. The writing is bad; many of the sentences are neither English, American nor French, although the translator has obviously been at pains to preserve the literal translation rather than to employ an idiomatic equivalent.

<sup>1</sup> "The Bacteriophage: Its Rôle in Immunity" by F. d'Herelle, Pasteur Institute; English Edition, authorized translation by George H. Smith, Ph.D.; 1922. Baltimore, U.S.A.: Williams & Wilkins Company; Demy 8vo., pp. 287, with one plate and fourteen charts. Price: \$4.00.



In considering the relation of the bacterium and the bacteriophage the author quotes experiments to show that in the struggle for supremacy some bacteria are capable of acquiring an immunity, whereby they are able to resist the lytic action of the ultra-microbe. The occurrence of these resistant forms has been confirmed independently by the work of other investigators, including A. Gratia and M. Wollstein in America. When a stable equilibrium occurs between the resistance of the organism and the virulence of the bacteriophage, a "mixed" culture is said to result. The author explains the occurrence of many of the abnormal cultures met with by laboratory workers from time to time as being due to such a "mixed" culture of organisms and bacteriophage, an hypothesis which may prove to be correct.

The chapter dealing with the bacteriophage antiserum and the production of antibodies to the bacteriophagus ultra-microbe and antilynsins to the lytic diastase of the bacteriophage is particularly interesting. Many of the experiments detailed afford information which strongly supports d'Herelle's theory. It has been found impossible to demonstrate the presence of agglutinins for the bacteriophage, but experiments embracing the use of the complement fixation test are described, demonstrating that in the production of an anti-bacteriophagous serum an amboceptor is formed specific for the bacteriophage. The same experiment confirms the author's previous statements concerning the unicity of the bacteriophage. Bordet in a recent lecture delivered at Edinburgh refutes d'Herelle's theory of the unicity of the bacteriophage on the ground that the antilytic serum specific for the lytic principle acting on one type of organism or of closely related species is not specific for the principle acting on widely different organisms. This apparent divergency from the theory of the unicity of the bacteriophage had previously been noted by the author. Experiments are quoted showing that the facts as stated by Bordet were well known to him. He argues that since strains of the bacteriophage differ from one another only in the virulence which they have acquired by adaptation for one or the other bacterium, it follows that the lysin secreted by the bacteriophage is different for the different bacteria attacked. Virulence for a given bacterium, therefore, resolves itself into the power possessed by the bacteriophage to secrete a lysin specific for this bacterium. The unicity of the bacteriophage is said to be demonstrated by the production of a single amboceptor, whatever strain of bacteriophage be employed in the immunizing process. The production of antilynsins specific only for the principle attacking one or the other type of bacterium is a manifestation only of the virulence of the bacteriophage for that bacterium. He claims that this virulence is acquired by the power of adaptation possessed by the bacteriophage and that this power of adaptation furnishes a proof of the living nature of the bacteriophage, since variation, *id est* the power of adaptation, is an attribute of life and of life exclusively.

Dealing with the nature of the bacteriophage the author reviews the possible hypotheses and arrives at the conclusion that consideration of all the facts together with the results of his own experimental work leaves no doubt as to the living nature of the causative factor. The hypotheses put forward by other workers are discussed and the conclusion reached that none is acceptable, because none takes into account the entire mass of facts. The author certainly has advanced a most interesting argument in favour of the bacteriophage. While the reader may not agree with him on all points in his deductions, his arguments on the whole are of a convincing kind. That the question is one which is still open to debate is shown by the ingenious hypothesis recently expounded by Bordet in the Cameron Prize Lecture delivered in Edinburgh.

In the second part of the book in which Dr. d'Herelle deals with the rôle of the bacteriophage in immunity, he shows that *in vitro* anti-bacterial sera do not exercise any bacteriolytic action and concludes that it is impossible to attribute any active contributory function in the production of anti-bacterial immunity to any known antibodies. All organic immunity in his opinion can be reduced to anti-bacterial immunity exercised by phagocytosis and to antitoxic immunity exercised by antitoxins. He puts forward the hypothesis that the immunity enjoyed by certain indi-

viduals or animals of susceptible type may originate in the bacteriophage. This would represent a heterogeneous immunity. He has investigated the relation between immunity and a principle to which a protective power may be attributed and claims that the parallelism between the state of the patient suffering from a disease and the presence and potency of the supposed protective principle should serve as a criterion for determining its true rôle. If a parallelism exist, it may be regarded in the possible relation of cause and effect. In a series of experiments embracing various diseases of animals he shows that an active bacteriophage for the organism causing the disease can readily be demonstrated as immunity develops. The natural corollary to this is that in a susceptible animal the administration of a bacteriophage culture active for a given organism should render the animal resistant to the disease caused by this bacterium. Further experiments were carried out in conjunction with M. Yersin, the Director of the Pasteur Institute in Cochinchina, with two diseases. These were barbone, a contagious septicæmia of the buffalo and plague. The results of these experiments are fascinating in the extreme and establish the fact that, whatever may be the nature of the phenomenon of transmissible bacteriolysis, its application as a factor in the production of immunity appears to be of the greatest importance.

Emboldened by his success with animal diseases, the author turned his attention to the treatment of diseases of man. In a limited number of infections with the typhoid bacillus and the dysentery bacillus, he has applied his hypothesis of heterogeneous immunization by means of bacteriophage cultures. Apparently he has obtained much success. Similar confirmatory experiments have been carried out by Bruynaghe and Maisin at the Bacteriological Institute at Louvain and by Beckerish and Handuray at the Institute of Hygiene at Strassburg, though in a small number of infections. A much wider application of the principle must be demanded before the medical profession can be convinced of its efficacy as a therapeutic measure.

A wide question is opened up which must claim the interest of laboratory workers and clinicians, to whom this book will prove most stimulating and suggestive. It may appeal to many as startling in the ideas expressed. At first these ideas may appear visionary, but by the abundance of experimental evidence afforded they cannot fail to impress the reader. The problem which Dr. d'Herelle presents will no doubt lead to a reconsideration of the existing doctrine of the mechanisms of immunity and in the future these doctrines may have to be modified not inconsiderably. This study of the bacteriophage opens up a new era in therapy in connexion with the infective diseases.

#### PHYSICAL EXERCISES FOR INVALIDS AND CONVALESCENTS.

A SMALL book entitled "Physical Exercises for Invalids and Convalescents" has been written by Dr. E. H. Ochsner primarily to fill his own personal needs in the after treatment of surgical and orthopaedic conditions.<sup>1</sup> There is an introduction setting out the general benefit to be derived from a course of set exercises and the actual text consists of a brief description of forty-two exercises. The description of each exercise is accompanied by an illustration which makes the idea of the movements clear. Like quite a number of publications of its kind the book will probably be of the greatest value to the author's own patients, but as a general direction for exercises it does not appear to be quite satisfactory. There are no particular underlying principles in the arrangement of the exercises, though many of the movements described are quite adequate to bring into play particular groups of muscles. The author hopes that his fellow practitioners will find the small manual useful and if used in this way it may have some value. It is difficult to see how many of the exercises described could be applied to the after treatment of orthopaedic conditions except in a very general way.

<sup>1</sup>"Physical Exercises for Invalids and Convalescents," by Edward H. Ochsner, B.S., M.D., F.A.C.S.; Second Edition; 1922. St. Louis: C. V. Mosby Company; Crown 8vo., pp. 56, with 42 figures. Price: 75 cents.



## The Medical Journal of Australia

SATURDAY, JULY 28, 1923.

### The Control of Venereal Disease.

THE incidence of venereal disease is world wide. Victims are claimed in almost every country and in every climate. Though for many years it was evident to medical practitioners and to sociologists that some drastic legislative measures should be undertaken with a view to controlling and, if possible, eliminating the scourge, Australia has been the pioneer. Compulsory notification was first introduced in Western Australia and the Acts of the other States of the Commonwealth have been modelled on similar lines. Legislation of this nature must necessarily be largely experimental and it must be granted that considerable advance has been made along the right lines. There are, however, in the measures adopted in the several States many anomalies to be removed and much new ground remains to be covered.

The enactments in force in Queensland, New South Wales, Victoria, Tasmania and Western Australia all contain provisions for the notification of a case of venereal disease without the name of the patient. Notification is carried out by the medical practitioner in attendance and treatment by unqualified persons is not allowed. Treatment may be obtained at certain specified hospitals or from private practitioners and provision is made for the continuance of treatment of the person affected. In South Australia an Act has been passed, regulations have been drawn up, but they have not yet been brought into force.

The aim of all efforts to control venereal disease is ultimately to check the spread of infection. This has been recognized in the several States. The Acts of Queensland and Victoria contain provisions for the apprehension of a person suspected of being infected by venereal disease with a view to examination and treatment on the receipt by the Commissioner or Inspector of a statutory declaration affirming the

belief that such person is infected. A similar provision existed formerly in the Western Australian Act. In practice it has been found that persons are loath to make a declaration to the effect that an individual is harbouring the disease. The statutory declaration is practically a useless weapon. In 1918 an amendment was made in the Western Australian Act to give the Commissioner power to take action in regard to any person whom he believed to be suffering from venereal disease. This regulation has proved to be advantageous at all events in Western Australia. It has been administered with care and discrimination by the Commissioner. The other States have not yet followed the lead of Western Australia in this regard.

The general method of gaining control over suspected persons is to arrest them on a charge of vagrancy and treat them in gaol. By this means the unfortunate person, generally a woman, is treated as a criminal instead of as a patient. Such women often have a low grade of mental development and prison associations will not be conducive to subsequent normal behaviour. The existence of these conditions drew very forceful remarks from a bench of magistrates in Melbourne recently when they were compelled to send a young girl to gaol for treatment. She had been arrested on a charge of vagrancy. The magistrates pointed out that no provision was made for the segregation and treatment of sufferers.

The provisions of the Victorian *Venereal Diseases Act 1916* in regard to apprehended persons are very comprehensive. It is required that clinical, chemical and bacteriological examinations shall be made in any prescribed place. Detention in these circumstances may last for four weeks. Should the medical inspector be of the opinion that detention for a further period is necessary, the Governor in Council may make an order for further detention in a prescribed or proclaimed place. Provision is further made in the Act for the establishment by the Minister of hospitals or places for the reception and treatment of persons suffering from venereal disease. It would appear that sufficient accommodation in institutions has not been provided in accordance with this portion of the enactment. This neglect cannot be regarded as other than culpable. Much

of the responsibility and anxiety of the Minister in regard to general hospitals in Victoria has recently been removed by the placing on the statute book of the *Hospitals and Charities Act*. It is to be hoped that with lessened responsibility in one direction he may turn his attention towards the adequate and proper treatment of persons detained for venereal disease.

#### THE NEW LOAN.

DURING the crisis of the world's affairs the British Empire called for men and money to enable her to maintain her position among the nations. The safety of the Empire was at stake and her citizens responded in such a manner that victory was assured from the first. In those dark days the Commonwealth Government, in common with the governments of all other parts of the greatest of all empires, was compelled to ask the people of Australia to place many million pounds at its disposal. Each successive loan was subscribed with a good will. It is true that the Government manifested a generosity that is unusual in connexion with so secure an investment. In September, 1918, the great Seventh War Loan was floated. The money then raised is repayable on September 15, 1923. Little by little large and small amounts have been converted from this loan to subsequent loans, so that at the present time only £21,500,000 have to be repaid. The Federal authorities have therefore determined to issue a new loan of £21,500,000 for a term of five years. The rate of interest will be 5%, but as each £100 bond will be purchasable at £98, the rate will actually be just over 5.1%. Moreover, the loan will be free of State income tax. The value of the security is unchallengeable. While the rate of interest may be lower than that offered by many commercial undertakings, its security renders the investment an attractive one to all citizens of the Commonwealth. It has been pointed out that the rising value of the Commonwealth Loan stocks and the fact that all attempts to purchase considerable quantities in the open market results in a further increase in price demonstrate the value that is attached to these investments. In bringing the new loan to the notice of members, we wish to em-

phasize the national rather than the financial aspect of the appeal. Australia has to honour her contract to repay the loans that have not been converted by September 15, 1923. Those who subscribed five years ago, did so to maintain the honour and integrity of the Empire. The Great War is over and the danger is past. But we still have to guard the unsullied reputation of the British Empire. The medical profession will, we are convinced, do its part.

#### Current Comment.

##### BISMUTH IN THE TREATMENT OF SYPHILIS.

SINCE the important work of Levaditi and Sazerac on the treatment of syphilis by bismuth was published in 1922, many observers have recorded their findings in regard to its action. The use of bismuth as an anti-syphilitic measure has not in Australia, at any rate, been adopted to any great extent. The intravenous injection of arsenical compounds and the intramuscular and oral administration of mercury are methods of tried and known worth that will not easily be replaced. The time is, however, opportune for considering the value of bismuth as an additional weapon in the medical practitioner's hands. It is natural that the effect of bismuth or of any other drug in the treatment of syphilis should be observed first in regard to the primary and secondary stages of the disease. The rate of disappearance of the skin lesions will give some idea of the efficacy of the drug. In dealing with latent syphilis it is not so easy to gauge the immediate effect of treatment. The effect of treatment on the power of a patient's serum to react to the Wassermann test is the only criterion available. Much will depend on the method used for the test. A higher percentage of reactions will be obtained with the ice box method than with the original method.

Among those who have studied the action of bismuth in the treatment of syphilis is Dr. J. V. Klauder.<sup>1</sup> Dr. Klauder has studied this question from the clinical and experimental points of view. The preparations used were the French preparation of sodium and potassium tartro-bismuthate in aqueous solution and in olive oil, potassium tartro-bismuthate in aqueous solution and bismuth trioxide in olive oil and by inunctions. He found that the preparations of the drug in olive oil suspension were much less painful on intramuscular injection than aqueous solutions and were therefore preferable. Intravenous injections are contra-indicated. The doses given ranged from 0.1 grammé to 0.2 grammé and the interval between injections from every other day to every fourth day. It was found that the majority of patients tolerated two grammes of the drug, if given at intervals extending over one month. Dr. Klauder treated fifty patients with

<sup>1</sup> Archives of Dermatology and Syphilology, June, 1923.

bismuth. They represented all three stages of the disease; in the majority of instances they were affected by a cutaneous manifestation. The serum of patients in the secondary and late secondary stages of the disease which reacted to the Wassermann test, in the majority of instances failed to yield a reaction after two grammes of the drug had been administered. The test was carried out according to the Kolmer modification. Unfortunately no effort was made to determine how long the failure to react on the part of the serum would last. The majority of the patients had not been previously treated and no investigation was carried out in regard to the effect of treatment in patients who had not yielded to previous intensive arsenical administration. Dr. Klauer also carried out a number of experiments with syphilitic rabbits. In the course of these experiments, he found that a reaction occurred which was analogous to the Herxheimer phenomenon obtained with arsenical administration. He regards this as furnishing additional evidence of the spirochæticidal action of bismuth.

In the course of a recent study on bismuth in syphilis, Dr. J. G. Hopkins investigated the effect of the drug on patients suffering from latent syphilis.<sup>1</sup> He treated forty-three such patients with bismuth. Thirty-one of these patients gave reactions to the Wassermann test that were described as "strongly positive." The reactions of the remainder were "weakly positive." In one of the first group and four of the second group the condition was so affected that the serum subsequently failed to yield a reaction to the test. It is not stated whether or not the ice box method of performing the test was used. In several instances in which intensive arsenical treatment had failed to produce an alteration in the response to the Wassermann test, an alteration in the strength of the reaction occurred after the first series of bismuth injections. The drug used by Dr. Hopkins was sodium and potassium tartro-bismuthate in a suspension of coconut oil prepared according to Cowley's method.

The action of bismuth on congenital syphilis has been investigated by Dr. M. Cajal and Dr. H. Spierer.<sup>2</sup> The drug as used by them was an oily suspension of sodium potassium tartro-bismuthate sold under the trade name of "Trépol." They have formed the conclusion that there are no contraindications to the use of bismuth in congenital syphilis. They state that "Trépol" is most suitable for use with infants because it is effective, its action is non-toxic and it does not cause pain. Its action was as rapid as arsenic and more rapid than mercury. The effect on the coryza was immediate. On splenomegaly the drug had no effect. In this it resembles arsenic and mercury. The doses of "Trépol" given to infants were relatively higher than those given to adults. An average dose of one centigramme per kilogram weight caused no inconvenience. It was found that for babies on the breast the best results were obtained by giving injection to both mother and child.

In considering the results of these three series

of observations on three different aspects of the disease in relation to bismuth the similarity of the conclusions is striking. Two observers have declared that the action of bismuth is equal to that of arsenic and more efficacious than that of mercury. Dr. Klauer states that bismuth is not as strongly spirochæticidal as arsenic. Bismuth belongs to the same group of elements as arsenic and the findings are not altogether surprising. No observations have been reported on the duration of the improvement effected by these observers. Levaditi referred to one patient who was treated by bismuth when in the primary stage of the disease. After his serum failed to react, treatment was stopped. Seven months later the inability to react was unaltered. Dr. Klauer draws some interesting practical conclusions from his statement that bismuth is not so strongly spirochæticidal as arsenic compounds. He refers to the occurrence of neuro-recidive phenomena following the use of arsenical compounds and draws attention to the baneful action of irregular and lapsing treatment with them. He refers to Ehrlich's explanation of these phenomena. He states that bismuth will not inhibit the immunological reaction on the part of the host to the same extent as arsenic compounds. For this reason he anticipates a lesser incidence of early neuro-syphilis following irregular and lapsing treatment with bismuth.

Of the value of bismuth in the treatment of syphilis there can be no doubt. It seems unlikely that it will entirely replace either mercury or arsenic. As an alternative or additional remedy it will be extremely valuable.

#### MAGNESIUM SULPHATE AS A SEDATIVE.

THE fact that magnesium has a specific action on the cells of the nervous system has not been generally realized. Magnesium sulphate is often used as an aperient and its action as due to osmosis is widely known. If purgation is not caused after administration, toxic symptoms may be produced. An instance has been recorded in which a fatal result was caused by the ingestion of 28.3 grammes (one ounce) of magnesium sulphate. In view of the action of magnesium on the nervous system Dr. P. G. Weston and Dr. M. Q. Howard have investigated the action of magnesium sulphate as a sedative.<sup>1</sup> They refer to the findings of Meltzer and Auer that the primary effect of magnesium on the nerve cell is that of paralysis without any previous excitation and that the effect is exclusively of an inhibitory character. They used pure recrystallized magnesium and made a 50% solution with distilled water. With two cubic centimetres for a dose, they base their findings on more than a thousand subcutaneous and intramuscular injections in patients suffering from mental conditions in various stages of excitement. In 82.7% of the total number of injections the sedative action was promptly produced, sleep was induced in from fifteen to thirty minutes and lasted for from five to seven hours. No sloughing or local pain occurred. They claim that thus administered magnesium sulphate is a useful substitute for morphine.

<sup>1</sup> *Archives of Dermatology and Syphilology*, June, 1923.

<sup>2</sup> *La Presse Médicale*, April 18, 1923.

<sup>1</sup> *The American Journal of the Medical Sciences*, March, 1923.



## Abstracts from Current Medical Literature.

### BACTERIOLOGY AND IMMUNOLOGY.

#### Staining of Tubercle Bacilli by the Schulte-Tigges Method.

HYMAN L. SHOUR (*Journal of Bacteriology*, March, 1923) compares the Schulte-Tigges and Ziehl-Neelsen methods of staining tubercle bacilli. The details of the former method are as follows: (i.) The slide is flooded with carbol-fuchsin in ten cubic centimetres of saturated solution of basic fuchsin in 95% alcohol and 90 cubic centimetres of a 5% solution of carbolic acid. (ii.) The slide is heated to steaming point and the heating is continued for one minute. Excessive heating is avoided. (iii.) The excess stain is washed off with tap water and decolorization is carried out in a 10% aqueous solution of sodium sulphite. It is necessary to renew this solution at least once a week and, if convenient, twice a week. (iv.) The slide is washed thoroughly with tap water and counter-stained with a saturated aqueous solution of picric acid. (v.) The slide is washed with tap water, dried and examined. The tubercle bacilli are red, the background is a pinkish yellow. Of eight hundred specimens of sputum examined tubercle bacilli were detected in two hundred and forty-four when stained by Schulte-Tigges method, in one hundred and eighty-three when stained by Ziehl-Neelsen method. In no sputum were tubercle bacilli found by the Ziehl-Neelsen method and not by the Schulte-Tigges method, but the reverse occurred in 33% of the tests. In several instances the Ziehl-Neelsen method was used with picric acid as the counter-stain and in every instance more tubercle bacilli were detected in the preparation under examination than when the counter-stain employed was methylene blue.

#### The Passage of Organisms through the Kidney.

S. C. DYKE (*The Journal of Pathology and Bacteriology*, April, 1923) describes experiments undertaken with a view to ascertaining the manner of the passage of organisms through the kidney. Male rabbits were used and the organism selected was the *Staphylococcus aureus* because it is easily dealt with in culture, is a common cause of infective conditions in the urinary system of man and is not of normal occurrence in the urethral meatus of the rabbit. An emulsion of the staphylococcus was injected into the ear veins of rabbits and samples of urine withdrawn from the bladder at varying intervals were cultured. It was found that the organisms introduced into the blood stream did not appear alive in the urine until the fifth hour from the time of the injection and that once they appeared they were present until the death of the animal. An attempt was made to follow the cocci through the kidneys with

a view to ascertaining whether Cohnheim's theory, that they are excreted by the organ, is correct or whether their appearance in the urine is an indication of the presence of lesions in the renal substance. Results obtained led the author to conclude that no excretion of living cocci by the normal kidney takes place, but that their passage from the blood stream only occurs as the result of the formation of lesions in the kidney substance. His experiments showed that the first cocci to find their way to the kidneys are held up in the glomeruli and there destroyed by the phagocytic action of the endothelial cells of the capillaries of the tuft. Later coccal emboli lodge in the vessels afferent to the glomeruli; these multiply and give rise to abscesses in the cortex and boundary zone. Even before a definite abscess is established organisms find their way through the damaged vessel walls and tubular epithelium and gain ingress to the lumina of the tubules. About the fifth hour from their introduction into the blood stream they appear in the urine. Further lodgement of masses of cocci takes place in the tubules and abscesses are formed in the medulla as well as in the cortex. The process continues by reinfection up till the time of the death of the animal.

#### Anaerobic Treponemata.

FREDERICK L. GATES (*The Journal of Experimental Medicine*, March, 1923) reports the results of a successful attempt made to cultivate anaerobic treponemata in colony form. Preliminary experiments were undertaken with two strains of *Treponema pallidum*, one each of *Treponema calligyrum* and *Treponema microdentium*. The medium used consisted of ordinary nutrient agar to which 5% to 7% of fresh, sterile, unheated, defibrinated rabbit blood was added just before the plates were poured. This medium was sewn with several drops of an ascitic fluid-rabbit kidney culture of treponemata and spread with a platinum loop. The plates were incubated in a Brown anaerobic jar in which the catalyzer is heated by a resistance coil in a wire-screened chamber. The continuous introduction of hydrogen and application of heat rapidly carry the reaction to completion. Incubation is carried out at 37° C. for six to nine days. Colonies of *Treponema pallidum* produced hemolysis of the blood agar and on close examination the zones of most complete decoloration were found to be centered around minute elevated colonies. At the edges of the hemolyzed areas a delicate mantle of spreading growth was observed. Subcultures made from the raised centres and from the periphery of the growths developed different types of colonies, one raised and sharply circumscribed, the other flat and spreading. Each colony consisted of treponemata whose morphological characteristics varied and further work is necessary to determine whether these two types were both present in the original culture or whether one resulted from the other by mutation. The culture of *Treponema*

*calligyrum* also produced hemolysis in the blood agar, the colonies consisting of conical centres surrounded by a confluent plateau. In regard to *Treponema microdentium* areas of hemolysis were produced in the blood agar, but, although these were rich in treponemata, no growth on the surface could be seen and subcultures were unsuccessful.

#### Primary Cultivation of the Gonococcus.

F. G. MACNAUGHTON (*The Journal of Pathology and Bacteriology*, April, 1923) recommends the following medium for the cultivation of the gonococcus in emergency. A broth medium is prepared in the ordinary way and the reaction adjusted to between Ph 7.4 and 7.5. The evening before the medium is required one cubic centimetre of sterile human blood is added to each tube of ten cubic centimetres of broth and thoroughly mixed by rolling between the hands. The tubes are allowed to stand on the bench overnight. The red cells settle to the bottom of the tube. The plasma in clotting forms a thin cone-shaped sleeve attached to the sides of the tube at the top and to the centre of the mass of corpuscles at the bottom. To inoculate a platinum wire loopful of gonococcal pus is added to the surface of the broth within the sleeve and the wire rotated to get the pus suspended in a thin emulsion at the top of the tube. As the pus cells settle they become entangled on the plasma sleeve and from these cells growth originates if they have ingested gonococci. In twenty-four hours whitish colonies can be detected with the naked eye on the sleeve. If the sleeve be detached and brought in contact with a blood agar plate, secondary cultures are easily obtained.

#### Complement Fixation Reaction in Liver Fluke Infections.

N. HAMILTON FAIRLEY AND F. E. WILLIAMS (*The Journal of Pathology and Bacteriology*, January, 1923) record observations on the applicability of the serological method of Bordet and Gengou to distomiasis and on the antigenic value of various extracts employed in the test. Eight different antigens were used, two of which were prepared by extracting ground-up flukes with physiological saline solution, three by using carbolized saline solution and three by using absolute alcohol. Of these the alcoholic extract proved to be the most satisfactory. Of twenty sheep in which the presence of infection with *Fasciola hepatica* was definitely proven at autopsy, the serum of fourteen yielded a positive reaction, in two a partial reaction occurred and in the remaining four sera no reaction occurred. The reaction was definite and the authors are confident that with the production of more potent antigens the percentage of positive reactions will increase. The serum of normal sheep and of those infected with hydatid and lung worm failed to produce a reaction. The application of this method of diagnosis in *Clonorchis sinensis* infection in man is recommended.



## HYGIENE.

## Benzol and Metabolism.

FRANK P. UNDERHILL (*The Journal of Industrial Hygiene*, May, 1923) writes that benzol (benzene  $C_6H_6$ ) is obtained from the distillation of coal. He further states that the benzols on the market vary a good deal in composition according to the source of derivation and the extent of the purification. They generally consist, however, of benzene and its homologues, toluene and xylene. In the body it is partly oxidized to phenol, catechol and quinol and excreted as phenol sulphate. Its main uses are in the rubber industry, in the shoe trade for cement and as a motor car fuel. The author states that in America every day brings fresh instances of poisoning by benzol and he divides these into acute and chronic. In the acute conditions there is giddiness and excitement followed by convulsions and coma. In regard to pathology the blood in the heart and vessels is fluid, there are hæmorrhages into the gastric mucosa and bloody foam in the air passages. In the chronic form the symptoms are briefly those of an aplastic anæmia with subcutaneous hæmorrhages and bleeding from the mucous membranes. In the blood films made from patients suffering from the chronic form the prominent features were: (i.) great diminution in the number of red cells, but only slight changes in their appearance; (ii.) absence of regenerative forms; (iii.) scantiness of platelets; (iv.) diminution of the numbers of the granular white cells and relative increase in mononuclear leucocytes; (v.) definite leucopenia. The author in making his investigations on the influence of benzol on metabolism made use of rabbits. He had the benzol administered subcutaneously with a needle, the site chosen being the groin. In his work he endeavoured to determine the influence of starvation on urinary composition and the influence of benzol on blood elements. In this way, he determined: (i.) total nitrogen, (ii.) creatinin (pre-formed), (iii.) creatine, (iv.) phosphates. As a result he proved that benzol has a deleterious effect on metabolism, because there was a sharp rise in the elimination of both creatine and total nitrogen following its injection subcutaneously into the rabbit as compared with the slow, gradual rise seen under conditions of ordinary inanition.

## Pit Head Baths in Colliery Areas.

E. COLSTON WILLIAMS (*The Lancet*, December 30, 1922) writes that pit head baths may be defined as such provision as enables a miner to go to his work in ordinary clothes like other men, to change and store these clothes safely after putting on his pit clothes and after his work is done to have a warm bath to remove the sweat and dust from his body and to return home clean, changed and ready for his meal. In contrast with this, the author points out that under pre-

sent conditions the miner leaves the pit with his clothes wet and comes from a comparatively warm atmosphere within the pit to the cold temperature outside. He then has his journey home before him. Most of the homes are not provided with hot water or baths and consequently he washes in tubs of hot water prepared by the women folk. The time taken by the family in preparing these as well as the danger from accidental scalding are very apparent. In Germany, he states, colliery bathing facilities are compulsory and in France and Belgium the system is in general use. The chief difficulty rests in the fact that neither workman nor employer is prepared to meet the expenses of the scheme. In parts of the United Kingdom the scheme is in operation owing to the liberality of the shareholders of the mines concerned. The clothes are hung on endless chain suspenders fitted with hooks and reaching from roof to floor, the radiators being situated on the floor level. Special provision is made for new clothes and each miner has his own padlock. In regard to the baths, each miner takes about seven minutes for his bath and seventy sprays serve four hundred and twenty men an hour. In the mine in question there are two thousand two hundred miners, 70% of whom avail themselves of the system. At the end of each week the clothes are taken home for washing and mending and the establishment is thoroughly cleaned out. The Miners' Federation who are in favour of the principle, hold that the cost should be a charge on the industry to be borne by the owners.

## Traumatic Orchitis and the Employer's Liability.

F. LEGUEU (*The Medical Press and Circular*, March 14, 1923) in discussing the subject of traumatic orchitis, asks whether a testicle can sustain an injury which might even improperly be called a traumatic orchitis. By traumatism he means not only a blow, but also an effort. In discussing the question, he deals with three groups. The first group includes patients with orchiepidymitis, which is wrongly attributed to a blow or an effort. In this class is included gonorrhœal orchiepidymitis and that due to tuberculous disease in patients who have received an injury. The injury in these patients is on the same footing as the blow which is invariably put forward to account for an adenoma of the breast of a woman. The second group includes patients with tuberculous or gonorrhœal orchitis in whom the lesion has supervened immediately after a blow or effort. In these instances there must be a tangible verifiable accident. As instances, the author quotes a patient who experienced pain and swelling of the right testis after lifting a heavy weight. There was no evidence of gonorrhœa. There was swelling and pain and after operation the epididymis contained gonococci. He quotes the history of another patient who was struck on

the testis and consulted his doctor with a bruise on the scrotum and testicle which had become swollen after the blow. A month later an opening formed on the scrotum and tuberculous pus was discharged. Commenting on these patients, the author states that in each instance the gonorrhœa and tuberculous ante-dated the traumatism and that the two did not stand in the relationship of cause and effect. The third group contains debatable instances in which there is no wound, no torsion of the testis, no contusion, in which orchitis supervenes as a result of or immediately after a big effort in a person with a previously normal healthy organ. The author states here that twisting of the cord or testicle as the result of an effort can only occur in ill-descended testicles. These conditions fall under the terms of insurance. Illustrative of this third group, the author quotes a man who lifted a very heavy weight. There was no blow, but he complained of sharp pain in the left testicle. The testicle became enlarged; there was no ecchymosis and no evidence of tuberculous or gonorrhœa. Two months later the testicle was normal in size and soft with nothing abnormal in the epididymis. On further examination the author found that the left testis was undergoing atrophy. He states that, whatever the precise anatomical lesion was, it resulted from effort. He states in conclusion that to diagnose traumatic orchitis there must be a tangible, direct effort or blow, the reaction must occur immediately with pain, swelling and incapacity. He says that, although there is not in reality any such thing as traumatic orchitis, there are unquestionably lesions due to contusion or effort which entitle the workman to the insurance benefit.

## Physical Examination of Food Handlers.

L. B. GOYNE (*The Journal of the American Medical Association*, May 13, 1922) records the results of examination of food handlers for one year in Kansas City. The health department of the city examined two thousand six hundred and twenty-two persons, while two hundred and eighty-three were examined by family physicians. The department refused permits to sixty-one persons. None was refused by the family attendant. In addition to this, many persons relinquished work and left the town when the department began to enforce the regulation. No laboratory tests were used in the examination of any of the persons who were examined by private practitioners. The relation of the private practitioner to the enforcement of such regulations is one of the important problems connected with them. Many persons who were passed by private practitioners as free from disease, were apparently submitted to no examination and were found to be infected with venereal disease. The author expresses the opinion that a mental test in regard to certain general principles will be added to the physical examination.

## British Medical Association News.

### SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Melbourne Hospital on June 6, 1923, the Vice-President, DR. J. W. DUNBAR HOOPER, in the chair.

#### A Typical Leuchæmia.

DR. J. E. NIHILL showed a woman, aged thirty years, who gave a history of cough and hæmoptysis which was somewhat suggestive of pulmonary tuberculosis. She had never noticed anything abnormal in her abdomen. On examination it had been found that the spleen extended downwards as far as the umbilicus. Otherwise nothing abnormal had been detected. No enlargement of lymphatic glands had been found. The posterior portion of the mediastinum had been normal. Examination of the blood had shown the red cells to number 3,000,000 per cubic millimetre, the white cells had numbered 60,000. The blood film had shown the presence of large numbers of cells in appearance somewhat suggestive of large lymphocytes. They had, however, contained more protoplasm than large lymphocytes and some of them had been foamy in appearance. Mono-nuclear leucocytes had comprised 87% of the white cells. The administration of benzol for one week and two exposures to X-rays had brought the number of white cells down to 13,000 per cubic millimetre. Dr. Nihill had then given a dose of 100,000,000 organisms of typhoid vaccine. This dose had brought the number of white cells up to 17,000. The number had subsequently fallen to 6,000 and a normal blood picture had been presented.

#### Cancer of the Pylorus.

Dr. Nihill also showed a man, aged fifty-five years, who was suffering from cancer of the pylorus and anæmia. The history and the clinical findings had been very suggestive of pernicious anæmia. Dr. Nihill, however, pointed out that the colour index of the patient's blood was 0.49. This fact and the appearances found on X-ray examination had determined the diagnosis. This patient had given no history of vomiting, but he had had a large hæmatemesis in the ward. It was intended to operate on this patient.

#### The Treatment of Diabetes.

DR. J. F. WILKINSON showed several patients in order to illustrate the recent advances in the treatment of diabetes. The first patient was a boy who had made good progress when treated by the Allen-Joslin method. The second patient was shown in order to illustrate the disappearance of a definite glycosuria prior to cholecystectomy for cholelithiasis. The third patient was a boy, aged fifteen years. It had been found impossible to treat him in a satisfactory manner by the Allen-Joslin method. He had therefore been placed on a diet consisting of a low percentage of protein and carbo-hydrates but containing a high percentage of fats. He had progressed favourably for some time and had been treated by "Insulin." Coma and death had suddenly occurred. The fourth patient was suffering from diabetes and had a carbo-hydrate tolerance of only sixteen grammes. He was maintaining his body weight on a diet which contained a high percentage of fat. The presence of sugar was not demonstrable in his urine. At one period of his illness the carbo-hydrate tolerance had been increased by the use of "Insulin." This method of treatment would be continued when a further supply of the drug was available.

#### Charcot's Disease.

DR. R. H. STRONG showed a man, aged thirty-eight years, who was suffering from Charcot's disease of both ankle joints. The patient had been admitted to hospital complaining of a severe attack of vomiting. Examination had revealed the presence of unequal pupils which reacted to light. The knee jerks and ankle jerks had been absent. Rombergism and ataxia had been present. Dr. Strong pointed out that there was extensive bony proliferation around both ankle joints, that the joints contained no fluid

and that swelling of the soft parts was absent. The bony deformity had appeared without any pain other than "lightening" pains in the tibiae. The patient's serum had yielded a strong reaction to the Wassermann test. X-ray examination had revealed extensive bony proliferation of the lower ends of the tibiae and fibulae and of the bones of the feet. The points of interest in this case were the bilateral nature of the condition and the fact that the ankle joint was not frequently involved.

#### Compression Myelitis.

DR. R. R. STAWELL showed a patient who was suffering from compression myelitis with paraplegia in flexion. The patient was a married woman, aged forty-seven years. Ten years previously she had begun to suffer from continuous backache referred to the lumbar region, pains in the abdomen and pains in both legs. Apparently at that time X-ray examination had failed to reveal the presence of an abnormality. Five years previously she had first noticed some definite loss of power in both legs. Within three months both legs had become paralysed and sensation in the lower limbs and the lower half of the abdomen had been affected. Her legs had then been rigid and evidently in the extended position. At that time there had been no bony change in the spinal column and an X-ray examination had failed to reveal the presence of an abnormality. She had at that time been resident in Sydney. A laminectomy had been performed over the lower third of the thoracic part of the spinal column. Improvement had followed and some power had returned to the legs, the patient had been able to draw them up after the operation. After being allowed to sit up great pain had occurred in the back and had persisted. There had also been persistence of incontinence of urine which had taken place six months after the operation. Subsequently flexor spasms of a severe degree had occurred in the lower limbs. At a still later date an angular curve had appeared in the lower third of the thoracic portion of the spinal column. The flexor spasms had been very severe and were still most distressing. The spasms had been more pronounced when the bowels had not been acting regularly. At the time of demonstration the patient lay with her legs drawn up and adducted. Spasms were of constant occurrence, but were limited in range by the fact that trophic changes had taken place in all the joints and muscle and that possible movements were thus limited in extent. Each foot was in a position of *pes cavus*, the great toe of each foot was pointing forwards and downwards and was fixed at the metatarso-phalangeal joint. No movement of the great toe could take place and on neurological examination the plantar reflex showed itself only in a sudden movement of flexion of the thigh upon the trunk. In consequence of the fixation of joints it was possible to obtain only a small range of movement on eliciting tendon reflexes. There were the usual evidences of "mass reflex" in regard to sweating and the action of the bladder as described by Head and Riddoch. There was loss of sensation to touch on both sides as high as the umbilicus but there was some slight appreciation of intense painful stimulation in the right lower limb. A condition of "automatic bladder action" was present. Examination of the spinal column showed the presence of a gross angular curve involving the lower half of the thoracic region of the spine.

Dr. Stawell said that neurological problems in this patient were bound up with surgical problems. The patient's condition had exemplified the progress of increasing compression of the cord. First paraplegia had occurred with the limbs in the extended position and then as compression had advanced with the production of a physiologically complete transverse myelitis, paraplegia had been accompanied by flexion. It was questionable whether myelitis had not occurred below the level of the complete transverse lesion. From the type and degree of the kyphosis it would seem impossible to avoid the view that the condition affecting the bodies of the vertebrae was tuberculous in nature. It had not been possible, in view of the deformity and in consequence of the flexor spasms, to obtain a satisfactory skiagram. Dr. Stawell asked whether anything could be done from the surgical point of view to arrest the kyphosis and to diminish the pressure on the spinal cord. Further, from the neurological point

of view, he asked whether it was conceivable that any improvement could be obtained in regard to the type and degree of paralysis if the pressure on the cord were relieved after a period of five years and in the presence of gross trophic changes. Following on this, there arose the question as to whether it would be possible to diminish or control the distressing flexor spasms. Before coming under observations at the Melbourne Hospital, the patient had been subjected to various tenectomies which had proved quite useless. Dr. Stawell asked whether a carefully planned application of Stoffel's operation would be of any assistance. It would, of course, be necessary to overcome the flexor action of the psoas and iliacus muscles, a procedure which would present great difficulties.

DR. T. A. LAMBERT, DR. ALAN NEWTON, DR. G. SHAW STOKES and others discussed the case. It was suggested that a further effort should be made to obtain a satisfactory skiagram. It was felt by the majority of speakers that no further laminectomy would be justifiable and that the condition of the spine must be regarded as a tuberculous caries of the vertebral bodies. It was further suggested that Stoffel's operation could be carried out in regard to all the flexor and the chief adductor muscles with the exception of the psoas muscle. It was suggested that the psoas muscle might be resected within the abdomen without any attempt at denervation.

#### Subacute Bacterial Endocarditis.

DR. KONRAD HILLER showed a female patient, aged twenty years, who was suffering from subacute bacterial endocarditis. The patient had suffered from two attacks of acute rheumatism in childhood. After a period of general ill-health for eleven months with weakness and occasional night sweats there had been a sudden onset of right sided hemiparesis and hemianæsthesia one month prior to her admission to hospital. Examination on admission had revealed the presence of a large heart and of a loud systolic murmur. The pulse-rate had been rapid. A facial nerve paresis of the supra-nuclear type had been present together with loss of power in the right arm and to a less extent in the right leg. There had been no abnormality of sensation, no enlargement of the spleen and no petechial spots. Examination of the urine had revealed the presence of many red blood corpuscles, a moderate quantity of albumin had been present. No organisms had been obtained as a result of blood culture. A polymorpho-nuclear leucocytosis had been present. The patient's temperature chart had been slightly irregular and characterized by an evening rise to 38° C. (100.5° F.).

Dr. Hiller said that the points of interest in this patient's condition were first of all the association of the cardiac condition with the onset of neurological signs and symptoms and hæmaturia, secondly the previous history of acute rheumatism and thirdly the facts that the onset had been insidious and the pathological investigations had not yielded any definite results.

#### Basal Metabolism.

DR. J. F. CHAMBERS gave a short explanation of the term basal metabolism and demonstrated the method of its estimation by means of the Douglas bag and Haldane gas analysis apparatus. Dr. Chambers showed four patients to illustrate the features connected with its clinical application. The first patient was suffering from myxœdema. The basal metabolic rate in this patient had originally been -40%. Treatment with thyroid extract had been instituted in doses of 0.06 gramme of the dried extract and successive weekly estimations of the basal metabolic rate had been -35%, -31%, -26%, -23% and -21%. The second patient was one who had had no treatment. In this instance the diagnosis had been confirmed by the fact that the basal metabolic rate had been estimated at -33%. The third and fourth patients were suffering from thyroid enlargement. The clinical findings had been suggestive of hyperthyroidism, but the finding of normal basal metabolic rates had led to a review of the diagnosis.

#### Fractional Test Meal.

DR. F. L. APPERLY demonstrated the technique of the fractional test meal and illustrated the results obtained by charts from a number of patients suffering from

pyloric obstruction, pancreatic disease and gastric and duodenal ulcer. Dr. Apperly said that gastro-enterostomy for gastric ulcer was generally followed by complete or almost complete absence of free hydrochloric acid. Operation for duodenal ulcer left the curve of acidity but little altered. Dr. Apperly stated that the gastric secretion of patients suffering from achlorhydria could be shown to be good in nearly all instances by means of the various samples withdrawn from the stomach. The secretion, however, was neutralized as fast as it appeared. Dr. Apperly produced evidence to prove that intestinal irritation was the probable cause of this neutralization.

#### Fracture of the Femur.

MR. B. KILVINGTON showed three patients who had suffered from fracture of the femur. In each instance the fracture had been reduced by open operation and the ends kept in apposition by means of Lane's plates and silver wire. The femora of two of the patients had been plated after having been in extension apparatus for eleven and fourteen days respectively without any improvement in position. In both these instances there had been over 2.5 centimetres (one inch) shortening. The third patient had been treated by means of a Thomas's splint for seven weeks without resulting union. At operation it had been found in all three instances that non-union was due to the interposition of muscular tissue between the fractured ends of the bone. The femur of the first two patients had been plated twelve months previously and the skiagrams taken just before demonstration showed the presence of a large amount of callus about the plates. In the third instances apposition had been secured by drilling the fragments and fixing them with silver wire.

Mr. Kilvington discussed the advisability of using wire instead of plates. He said that wire was more secure and caused a smaller amount of callus to be thrown out. He pointed out that the effect of stripping the periosteum from the fragments was well exemplified in one instance twelve months after operation. A stalactyte formation of bone was to be seen lying parallel with the bone and about 1.75 centimetre from it. Mr. Kilvington said that stripping the periosteum made drilling the bone easier and caused less hæmorrhage.

#### Sarcoma of the Forearm.

MR. B. T. ZWAR presented a patient suffering from a sarcoma of the forearm. Dating from an injury to the left wrist two years previously there had been persistent growth resulting in the formation of a large dusky tumour. Mr. Zwar pointed out that there was a sharp line of demarcation at the upper and lower limits of the tumour and that the veins crossing its surface were distended. He said that the bones in the centre of the tumour had been completely absorbed for a distance of several centimetres. There was an enlarged gland in the axilla and it appeared from radiographical examination that the lungs and mediastinum were not involved. Among the points of interest were the evident relationship of an injury as the exciting factor and the apparent origin of the growth from the soft tissue. The bones showed complete erosion, but there was no sign either of bony expansion or of new bone formation. It was also of interest to note the glandular involvement in sarcoma.

#### Varghetti's Amputation.

MR. T. E. L. LAMBERT showed a patient on whom he had performed Varghetti's amputation through the forearm. The flexor and extensor muscles had been separated and completely covered either with skin flaps or by skin grafts. The patient had independent movement of the flexor and extensor groups of muscles.

#### Scrotal Tumour.

Mr. Lambert also showed a man, aged forty years, a waiter, who had been hit on the testicles with a cricket ball. The patient had stated that he had been unconscious for a time. He had noticed nothing abnormal for six weeks. After this interval of time there had been a sudden swelling of the testis. Examination had revealed the presence of a large hydrocele with a swelling of the testis and the epididymis. The hydrocele had subsided, but the



tumour had increased in size until it had become impossible to differentiate epididymis from testis. There had been no discharge from the urethra. The patient's serum had not reacted to the Wassermann test. It had been impossible to decide whether the swelling was due to inflammation or to a neoplasm. On the day of the meeting the patient had been operated on and pus had been evacuated from the *globus minor*.

#### Paget's Disease of the Breast.

MR. W. ALAN HAILES, D.S.O., showed a female patient, aged seventy-one years, who was suffering from Paget's disease of the left breast. Mr. Hailes pointed out that the left nipple and areola were surrounded almost completely by a red "weeping" area which had been extending since the first appearance of the condition two years previously. There were several points of interest. In the first place elevation of the breast and retraction of the nipple were present. There was an absence of a palpable tumour in the breast substance and a hard, discrete gland was present in the axilla. Mr. Hailes said that on account of the age of the patient and the fact that she was suffering from cardiac disease, he had recommended treatment by deep X-ray therapy.

#### Bilateral Congenital Elevation of the Scapula.

Mr. Hailes also showed a male patient, aged twenty-four years, a coal trimmer who had attended the hospital on account of an ulcerated leg. He was suffering from bilateral congenital elevation of the scapula (Sprengel's deformity). The deformity had first been noted when the patient at the age of two years had sustained a fracture of the left clavicle. At the time of demonstration both scapulae were so elevated that no cervical region was apparent. The medial angle of each scapula was palpable 6.75 to 7.5 centimetres (two and a half to three inches) above the clavicle. The right scapula was somewhat higher than the left and with the latter there was associated a slight scoliosis and torticollis. X-ray examination showed the presence of a bar of bone stretching from the spinous process of the seventh cervical vertebra to the vertebral border of the left scapula. Between this bar and the scapula a distinct joint existed. The scapula was freely movable on the bar of bone which remained rigid. The bar was palpable. Mr. Hailes pointed out that the muscles of the shoulder girdle were well developed, especially the trapezius, the deltoid and the triceps. The scapula could be elevated voluntarily to a height of about five centimetres. There was no disability. There were several points of interest. These included the bilateral nature of the deformity, the presence of the bar of bone and the joint on the left side, the absence of any disability and deficient chest development.

#### Tuberculous Disease of the Spine.

DR. F. G. MEADE, on behalf of MR. H. R. DEW, showed a male patient, aged thirty years, a rubber worker, who had come under observation three weeks previously. Dr. Meade pointed out that the patient was suffering from kyphosis due to bony changes in the bodies of the lower dorsal and upper lumbar vertebrae. There was also present a cystic swelling over the left sacro-iliac joint. X-ray examination had revealed collapse of the bodies of the tenth, eleventh and twelfth thoracic vertebrae and the presence of an abscess extending in the posterior portion of the mediastinum behind the anterior common ligament. Absorption and erosion of the bones around the left sacro-iliac joint had also been shown to be present. In discussing the diagnosis of the condition, Dr. Meade said that the possible presence of tuberculosis, syphilis or hydatid disease of the spine had to be taken into consideration. No reaction had occurred to the Casoni test for hydatid disease. A strong reaction had occurred in the serum to the Wassermann test. The condition seemed to be due to tuberculosis of the spine on a syphilitic basis. The points of interest included the painless nature of the condition in spite of its extensive nature and fact that there had been no deformity and no disability until three weeks previously.

#### Deep X-Ray Therapy.

DR. J. F. CLENDINNEN showed a female patient who had been operated on in March, 1921, for malignant disease of

the right breast. A recurrence had taken place in the glands and a second operation had been undertaken in March, 1922. In July, 1922, a further recurrence had taken place in the axillary and supra-clavicular glands, pain had been present in the left shoulder and the patient had lost the use of the left arm. Examination by X-rays had shown absorption by the growth of the body, spine and glenoid portions of the left scapula. Deep X-ray therapy of the left shoulder joint and the right axillary and supra-clavicular areas had been commenced in July, 1922. This had been repeated in September, 1922, and a third prophylactic course had been given over the left shoulder in December, 1922, and January, 1923. Dr. Clendinnen said that radiographic examination at the time of demonstration showed that bone which had previously been destroyed, had been regenerated. Clinically there was no evidence of the growth. The patient had a moderately useful arm, limitation in abduction was the chief disability. The patient was doing her own housework.

Dr. Clendinnen's second patient was a man who had been operated on in September, 1922. A large inoperable colloid carcinoma of the stomach had been found. Gastro-enterostomy had been performed. X-ray examination had shown an almost total residue six hours after the ingestion of food. A course of deep X-ray therapy had been undertaken in October, 1922, and a second course had been given in April, 1923. In January, 1923, it had been found with the fluorescent screen that the pylorus was functioning. Dr. Clendinnen said that the patient had returned to work and had gained 7.4 kilograms (sixteen and a half pounds) in weight.

Dr. Clendinnen's third patient was a woman whose left breast had been removed four years previously. In October, 1922, the patient had developed a carcinoma of the right breast with enlarged glands in the axilla. She had also given a history of uterine haemorrhage of thirteen months' duration. The cervix had been large and nodular and the uterus had been enlarged and fixed owing to extension in the pelvis. Ascites had been present. Treatment had been begun by deep X-ray therapy in October, 1922, on the breast and pelvis. At the time of demonstration the breast was apparently clear. The cervix and uterus were small and scarred and the uterus was mobile. No pelvic mass was palpable. The patient was able to do her own house work and was putting on weight.

MR. FRANK ANDREW showed three patients who had been treated by Dr. Clendinnen with deep X-ray therapy. The first patient had suffered from a large and actively growing malignant tumour of the glosso-epiglottic recess apparently originating around a lingual thyroid gland. No cervical thyroid gland had been palpable. The second patient had suffered from an encephaloid carcinoma of the same region. When first seen this tumour had been larger than a golf ball. In both these patients the tumours had been reduced by deep X-ray therapy in a few weeks to shallow craters. Great relief of symptoms and striking improvement in general health had occurred.

In Mr. Andrew's third patient the hypopharynx had been choked by a squamous carcinoma. Preliminary X-ray therapy had greatly improved the power of swallowing and had removed the fungating masses. The use of radium applied intra-pharyngeally had produced further rapid improvement.

#### Skiagrams.

DR. HOWARD F. PRAAGST showed some interesting skiagrams. A series of skiagrams illustrating the various applications of the bismuth meal included conditions such as gastric ulcer with crater formation and with and without incisura, gastric carcinoma, duodenal ulcer with and without crater formation, chronic appendicitis. Disease of the gall bladder was demonstrated radiographically by means of gall stone shadows, by the shadow of the gall bladder and by indirect evidence such as the indentation and deformity of the barium-filled duodenum. A barium meal had been the means of diagnosing obstructive dilatation of the duodenum caused by a mass of tuberculous glands situated at the gastro-duodenal junction. The same means had been employed to demonstrate enormous atony and dilatation of the small bowel in a patient suffering

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from sprue and to demonstrate diverticulitis of the colon in another patient. A clear demonstration was made of polypi throughout the colon by means of a bismuth enema. Dr. Praagst also showed pyelograms of normal and abnormal kidneys and skiagrams of renal, ureteral and vesical calculi and of a calcified hydatid cyst of the liver. He also showed stereoscopic films of a chest with an old ruptured hydatid cyst and bronchiectatic dilatation. The X-ray findings had been confirmed at operation or *post mortem* examination in every instance but three. In these no operative procedure had been undertaken.

#### Otogenic Brain Abscess.

MR. FRANK ANDREW showed three patients who had been suffering from cerebral abscess. In two instances the abscesses had been situated in the temporo-sphenoidal region and in the third instance in the cerebellum. Mr. Andrew said that he wished to illustrate the results of complete removal of the bony angle between the middle and posterior fossæ the angle of which lay at the tentorial attachment. The removal of this bony angle uncovered a re-entrant angle in the *dura mater* which rapidly became a convexity and produced a decompression of the vital centres without opening the *dura mater*. If the *dura mater* were opened, the subjacent spaces would be exposed to infection. All three patients had been desperately ill. One of the patients with a temporo-sphenoidal abscess had suddenly become unconscious with general rigidity, mass convulsions, widely dilated pupils and failing respirations. Operation on this patient had been undertaken without anaesthesia and artificial respiration had been used at intervals until the completion of decompression. From the pus in this abscess *Streptococcus faecalis* had been grown. From the pus of the second temporo-sphenoidal abscess *Bacillus coli communis* had been grown. The abscess in this instance had been chronic in character and had been drained through the *dura mater* of the floor of the middle cranial fossa. Drainage had continued for two and a half months. Verbal amnesia had been very noticeable in this patient and had only cleared up after a period of thirteen months. The patient had been almost comatose. The cerebellar abscess in the third patient had been secondary to a gangrenous lateral sinus. *Streptococcus hemolyticus* had been grown from the pus. The intra-dural pressure had been very great and the improvement in the pulse and respiration on the extenteration of the bony angle had been noteworthy.

#### Ophthalmic Conditions.

DR. LEONARD MITCHELL presented for ophthalmoscopic examination patients suffering from glaucoma, *retinitis pigmentosa*, papilloedema and chorioiditis.

#### Diathermy.

MR. KENT HUGHES showed several patients suffering from wide-spread rodent ulcer who had been under observation for varying periods up to three years. In no instance had more than one application of diathermy been made.

MR. KENT HUGHES also demonstrated the effect of diathermy in the treatment of epithelioma. One patient who had been treated for a very extensive involvement of the auricle and scalp over the temporal bone, had remained well for a period of eighteen months. Another patient had had an extensive involvement of the left half of the palate and the left mandible as far forward as the first molar tooth. The left superior maxilla had also been involved. Mr. Kent Hughes pointed out that the site of the original growth was quite free from any appearance of epithelioma and that the surface was covered by healthy scar tissue. A fresh ulceration had appeared well away from the original site on the upper alveolar border.

#### Lesions of the Skin.

DR. A. W. FINCH NOYES showed several patients suffering from blastomycosis, *lupus erythematosus* and rodent ulcer with *keratosis senilis*. Dr. Noyes also showed several patients who had suffered from rodent ulcer in order to demonstrate the very good results he had been obtaining for several years by treatment with solid carbon dioxide.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, on June 1, 1923, Dr. D. A. CAMERON, the President, in the chair.

#### Chronic Nephritis.

DR. S. F. MACDONALD and DR. J. V. J. DUHIG exhibited *post mortem* specimen and read notes of a case of primary chronic interstitial nephritis.

#### Urticaria Pigmentosa.

DR. LOCKHART J. SPENCE presented a patient suffering from *urticaria pigmentosa*, a condition of rarity. The patient had been sent to him by Dr. A. J. Reye. There were two types of this condition, the macular and the nodular. The patient, a female child, was suffering from the macular variety. The child's age was one year. The colour of the rash was yellowish-brown. This was caused by the deposition of pigment from a previous attack. As the attacks followed one another, the rash tended to become persistent. It usually began during the first year of life. The macules were formed by the urticarial wheals reappearing on the same site. The eruption was most abundant on the covered parts of the body, although the disease could be seen on the neck, spreading on to the face and the back of the scalp. When the spots were exposed to air or to other stimulus, wheals formed, usually at night time. The spots began to clear up about puberty. Treatment beyond symptomatic was of little avail until this period was reached.

#### Lupus Vulgaris.

Dr. Spence presented a patient to illustrate the effect of diathermy in the local treatment of *lupus vulgaris*. He said that this treatment did not yield the excellent cosmetic effects produced by the Finsen light treatment, but as the patient had come from the country and could not afford the necessary time, even if this form of treatment were available at the Brisbane Hospital, he had applied diathermy. Diathermy had an advantage over treatment by scraping with a curette which, unless very thoroughly done and followed by swabbing with phenol, was apt to lead to infection of the surrounding tissue. Diathermy eliminated that risk by sealing up the lymphatic spaces. If there was an objection to the method, it was that there was a slight disfigurement caused by the formation of keloid in the two larger areas.

#### Myxœdema.

DR. D. GIFFORD CROLL, C.B.E., showed a man, previously healthy, who had been wounded in the neck in 1916. There had been much swelling and inflammation around the wound. The patient had not been well since. He had suffered from headaches, loss of energy, dyspepsia, constipation and caries of his teeth. It had been found that there had developed an aneurysm of the right carotid artery. The thyroid gland was not palpable. The patient's skin had become dry and harsh, the hair dry and brittle, the eyebrows thinned in the outer third, the teeth decayed, the gums receded and infected by pyorrheal organisms. His pulse-rate had been 64 and his temperature 35.5° C. He had been given 0.06 gramme of fresh thyroid gland three times a day for twelve days. There had been a slight improvement in his health. His temperature had then ranged from 34.5° C. to 36.1° C. He had then been given 0.3 gramme of fresh thyroid gland three times a day for sixteen days. The temperature had risen at once and had reached to 36.6° C. and even to 37.2° C. The harsh skin had peeled and the skin had become smooth and soft, except on his hands. The hands had become moist and less harsh than they had been. There had been a very definite improvement in his general health. The dryness of the hair was scarcely noticeable; the patient no longer had headaches; his appetite had improved; he did not suffer from dyspepsia; his energy had returned and he had lost 2.25 kilograms in weight.

DR. J. LOCKHART GIBSON asked why the aneurysm had not been treated by surgical means.

DR. J. A. CAMERON said that he had shown the same patient at a Branch meeting two years previously. At that time he had not detected any signs of myxœdema.

Dr. G. P. DIXON, C.B.E., said that this patient had been under his treatment previously, but that he had not noticed any signs of myxœdema.

Dr. E. S. MEYERS suggested that an estimation of the basal metabolism might remove all doubt concerning the diagnosis.

In his reply Dr. Croll stated that he had not been able to have the estimation of the basal metabolism carried out in Brisbane. In reply to Dr. Gibson, he said that the patient had refused surgical treatment.

#### Morphine-Scopolamin Narcosis.

Dr. F. A. HOPE MICHÖD read a paper entitled: "Some Notes on the Management of Labour by Means of Hyoscine and Morphine Narcosis" (see page 83).

Dr. J. A. CAMERON said that with the use of morphine and hyoscine the labour in primiparæ was about three hours longer, but the extra time was quite justified. He inquired as to the frequency of *post partum* hæmorrhage. He stated that in general practice the great difficulty was to induce patients to go into nursing homes. They could extend the use of these drugs with patients outside the nursing homes, but the results were not as good as those obtained by the complete method. He considered that midwifery was too much hurried and that pituitrin was used too frequently. As regards the babies, he suggested that they should be a little more gentle in their methods of artificial respiration. He used insufflation to start the baby breathing and did not use some of the more violent methods recommended in text books. This point was emphasized in Potter's book on version. He pointed out that on the figures supplied by Dr. Michö, forceps were not required as frequently.

Dr. A. C. F. HALFORD had made an attempt to give this method a trial. Two of his first six patients had become wildly delirious. He asked Dr. Michö how to avoid this. He considered that the great disadvantage of the method was the necessity for having the patient in a hospital. He was not convinced that better results were obtained in midwifery by having all patients in hospital. As regards the "blue" babies, he raised the question as to whether the blueness was due to the morphine, the hyoscine or to both. He had used morphine a good deal in his work and seemed to get as good results as without hyoscine. He did not know that the increased number of "blue" babies was due to the morphine, as in ordinary work he saw many "blue" babies. He considered the condition of the baby's heart of far more importance than the "blueness."

Dr. A. H. MARKS said that from a perusal of the literature, he had found that all were agreed as to the necessity of hospitalization and that the doctor should be within call. This was not always possible under conditions of practice in Brisbane. He said that the majority of patients did not remember much about their confinements afterwards. He had had patients who had not noticed much difference when treated in the ordinary method, even though they had had morphine and hyoscine in a previous labour.

Dr. D. GIFFORD CROLL expressed the opinion that the method would be the one of choice in future. He had used it in a few cases with varying success. In one instance in which he had used the recommended doses, the patient had become very excited and the child had to be delivered with forceps. To another patient he had ordered an injection of 0.015 gramme ( $\frac{1}{4}$  grain) of morphine, 0.0006 gramme (1/100 grain) of atropine and 0.00024 gramme (1/250 grain) of hyoscine every hour for eight injections. He had discovered afterwards that there had been a mistake in dispensing and that the dose of hyoscine had been 0.0004 gramme (1/150 grain). This case had been a complete success.

Dr. LOCKHART SPENCE said that he had had experience of this method as a resident medical officer in Scotland. He had found there that if a child was born two hours after the last injection, "blue" babies were frequent. Restlessness was due to insufficient dosage.

Dr. G. P. DIXON, C.B.E., asked if Dr. Michö had used the method as a preliminary for general anæsthesia.

Dr. S. F. McDONALD pointed out that in Dr. Michö's series there had been no cases of *asphyxia pallida*. American

neurologists considered that this condition was not asphyxia at all, but basal cerebral hæmorrhage caused by violence during labour.

Dr. E. S. MEYERS asked if Dr. Michö had noticed if the tone of the abdominal and perineal muscles was better in labour conducted by this method than in the ordinary way. As regards the "blue" babies, he suggested that the method of Haldane, in England, and Haggard and Henderson, in America, of giving carbon dioxide and oxygen would be valuable.

Dr. D. A. CAMERON suggested that when the babies were "blue," chloroform and a good number of injections had been used. He thought that they were likely to lose the baby under these conditions.

Dr. MICHÖD in reply said that teachers condemned this method of treatment and that their attitude did much harm to the progress of its use. One prominent teacher on being taxed, had admitted he had not himself tried the method, though he had previously condemned it. As regards *post partum* hæmorrhage, he had only had one slight case. He thought that perhaps it was necessary to watch the uterus a little more carefully as there was a tendency to relaxation. In regard to the trouble of treating patients, three had caused him some trouble as they wanted to get out of bed, but one nurse was able to look after them. Fragile women were the best patients; with big muscular women it would be necessary to increase the dose. He was not sure that it was of any use performing artificial respiration as probably the lung had not expanded. The question of the heart was most important. He considered that the better educated people were the best subjects for the method. He had had only one case of mania and it took three people to hold the patient. It was essential to have a well trained nurse. In a hospital noise and disturbance could be avoided and forceps were not required as often. He thought that the blueness was probably due more to hyoscine than to morphine. He did not advise the use of hyoscine and morphine for quick confinements. He was not sure that in cases of difficult labour the method would be a success. He was convinced of the value of the preliminary use of the method in general anæsthesia. He had not noticed the condition of the abdominal muscles. Oxygen was difficult to obtain in the west as transport was so very expensive. He was not sure that patients to whom chloroform was given, were those who would give birth to "blue" babies.

#### NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

- ALLEN, RAYMUND ASHER MILTON, M.B., Ch.M., 1922 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown
- ALLISON, JOHN ROBSON, M.B., Mast. Surg., 1921 (Univ. Sydney), Coraki, Richmond River.
- ANNETTS, HENRY ALLAN, M.B., Ch.M., 1922 (Univ. Sydney), Hillston.
- CHESTERMAN, JOHN NICHOLSON, M.B., Ch.M., 1923 (Univ. Sydney), Lurnea, Vacluse Road, Vacluse.
- DAVEY, RICHARD DUNCAN, M.B., Ch.M., 1923 (Univ. Sydney), Brighton Avenue, Croydon Park.
- ELPHICK, VIVIAN ROY, M.B., 1923 (Univ. Sydney), Lake Cargelligo.
- FINLAY, CLYDE CECIL, M.B., Ch.M., 1923 (Univ. Sydney), 2, Orr Street, Bondi.
- GEORGE, WILLIAM ELLIS, M.B., Ch.M., 1922 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.
- GREEN, JAMES CARLTON, M.B., Mast. Surg., 1921 (Univ. Sydney), Punchbowl Road, Punchbowl.
- GREGG, NORMAN MCALISTER, M.B., Ch.M., 1915 (Univ. Sydney), 215, Macquarie Street, Sydney.
- HANKINS, SYDNEY HAMILTON, M.B., Ch.M., 1923 (Univ. Sydney), Angledool.
- HEATH, LEO BARCLAY, M.B., Ch.M., 1922 (Univ. Sydney), c.o. Dr. S. S. Shirlow, Balmain.
- HUIE, JOHN ZIEGLER, M.B., Ch.M., 1922 (Univ. Sydney), Peak Hill.



KENDALL, ARTHUR EDWARD HUME, M.B., Ch.M., 1923 (Univ. Sydney), Wesley College, The University of Sydney.

LEY, THOMAS URBAN, M.B., Bac. Surg., 1922 (Univ. Melbourne), Wagga Wagga.

MINOGUE, SYLVESTER JOHN, M.B., Ch.M., 1922 (Univ. Sydney), Mental Hospital, Parramatta.

ROPER, CECIL VALENTINE, M.B., Ch.M. 1922 (Univ. Sydney), 107, Shadforth Street, Mosman.

SMALPAGE, EDWARD STANLEY, M.B., Mast. Surg., 1916 (Univ. Sydney), Darling Street, Balmain.

STOBO, JOYCE SELDON, M.B., Ch.M., 1923 (Univ. Sydney), Women's Hospital, Crown Street, Surry Hills.

WHISH, GEORGE MILROY, M.B., Bac. Surg., 1912 (Univ. Glasg.), Young.

WHITFIELD, RALPH ALISTER, M.B., Ch.M., 1922 (Univ. Sydney), Royal Alexandra Hospital for Children, Camperdown.

WILLARD, FRANK TRENERRY, M.B., Ch.M., 1921 (Univ. Sydney), Maclean, Clarence River.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

JAMES, CLIVE HENRY REYNOLDS, M.B., B.S., 1923 (Univ. Melbourne), Alfred Hospital.

KING, EDGAR SAMUEL JOHN, M.B., B.S., 1923 (Univ. Melbourne), Alfred Hospital.

NORTH, EDGAR ALEXANDER, M.B., B.S., 1923 (Univ. Melbourne), Alfred Hospital.

PODGER, VALENTINE CHARLES, M.B., B.S., 1923 (Univ. Melbourne), Kolora, *via* Terang.

SMITH, LLEWELLYN MEREDITH, M.B., B.S., 1923 (Univ. Melbourne), Yarragon.

THE undermentioned have been elected members of the Queensland Branch of the British Medical Association:

DIVE, WILFRED ROYLE, M.B., 1921 (Univ. Sydney), Proserpine.

LAMB, ANDREW CECIL, M.B., Ch.M., 1922 (Univ. Sydney), Brisbane.

DE MONCHAUX, CHARLES FRANCIS ANTHONY, M.B., 1921 (Univ. Sydney), Brisbane.

AUSTRALASIAN MEDICAL PUBLISHING COMPANY, LIMITED.

#### ANNUAL MEETING.

THE Annual Meeting of the Australasian Medical Publishing Company, Limited, was held in the B.M.A. Buildings, 30 to 34, Elizabeth Street, Sydney, on July 17, 1923, Dr. W. H. Crago, the Chairman of Directors, in the chair.

#### Directors' Report.

The Directors submit their report for the past year and the Balance Sheet as at June 30, 1923, together with the Profit and Loss Account for the twelve months ended June 30, 1923.

The business of the Company, as hitherto, has been mostly concerned with THE MEDICAL JOURNAL OF AUSTRALIA, which completed its ninth year at June 30, 1923.

The improvement in the appearance of the Journal, referred to in the last report as following upon the installation of plant which allowed of the type-setting and composing being done by the Company's own staff, has steadily continued; and, in addition, the economic advantage of being, even to a limited extent only, independent of outside printers, has become apparent.

The question of establishing a complete printing plant, which would enable the Journal to be wholly produced by the Company's own staff, has had careful consideration by the Directors during the year. A scheme for this purpose was approved, which has been brought to the notice of the profession in all the several States. It is the intention of the Directors to proceed with the matter at the earliest opportunity.

The appointment of Dr. Mervyn Archdall as whole-time instead of part-time Assistant Editor has been a great advantage in the work of the Journal and has afforded much relief to the Editor.

In regard to the proposal which was still under consideration at the time of the last Report, that the Company should undertake the publication of a History of the Australian Army Medical Corps in the War, on behalf of and in cooperation with the Federal Government, the Directors failed to come to a satisfactory arrangement with the Government and notified the Federal Committee of the British Medical Association in Australia, through whose instrumentality the negotiations with the Government had been established, that they were reluctantly obliged to stand aside. It is understood that the History is now progressing under the direct supervision of the Defence Department itself.

The Company has been made a defendant in a libel action, in the Supreme Court of New South Wales, brought against it by Dr. G. S. Thompson. The date for the trial is fixed for September 1, 1923.

Dr. W. N. Robertson and Dr. F. S. Hone retire from the Board of Directors in accordance with the requirements of the Articles of Association and are eligible and offer themselves for re-election.

For the financial position of the Company you are referred to the Balance Sheet and Profit and Loss Account.

W. H. CRAGO,  
Chairman.

July 17, 1923.

Dr. W. N. Robertson, C.B.E. and Dr. F. S. Hone were re-elected Directors of the Company.

### Obituary.

PATRICK KENNEDY.

It is with regret that we have to announce the death of Dr. Patrick Kennedy, of Albury, on July 23, 1923.

### Proceedings of the Australian Medical Boards.

QUEENSLAND.

THE undermentioned have been registered, under the provisions of the *Medical Act of 1867*, as duly qualified medical practitioners:

FRASER, MALCOLM BRITNELL, M.B., Ch.M., 1921 (Univ. Sydney), Maryborough Hospital.

MACGREGOR, PETER NEWTON, M.B., Ch.M., 1923 (Univ. Sydney), Brisbane.

PARER, JOHN IGNATIUS, M.B., Ch.B., 1907 (Univ. Melb.), F.R.C.S., 1912 (Edin.), Toowoomba.

SHEPHERDSON, RUPERT FARQUHAR, M.B., Ch.M., 1923 (Univ. Sydney), Toowong.

### Books Received.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS, by E. Poulsson, Christiania, English Edition edited by W. E. Dixon, M.A., M.D., F.R.S., Cambridge; 1923. London: William Heinemann (Medical Books), Limited; Royal 8vo., pp. xi. + 519, with 32 figures. Price: 25s. net.

DENTAL SURGERY AND PATHOLOGY, by J. F. Colyar, K.B.E., F.R.C.S., L.D.S.; Fifth Edition; 1923. London: Longmans, Green and Company; Demy 8vo., pp. xiv. + 931, with six plates containing 30 radiograms and 951 illustrations in the text. Price: 32s. net.

**DISEASES OF THE NERVOUS SYSTEM: A TEXT-BOOK OF NEUROLOGY AND PSYCHIATRY**, by Smith Ely Jelliffe, M.D., Ph.D. and William A. White, M.D.; Fourth Edition, Revised, Rewritten and Enlarged; 1923. Philadelphia and New York: Lea and Febiger; Sydney: Angus and Robertson, Limited; Demy 8vo., pp. xx. + 1,119, with 475 engravings and 13 plates. Price: 50s. net.

**IN GRAY AND SCARLET**, by Sister R. A. Kirkcaldie, late of A.M.F.A. "Grantala"; 1923. Melbourne: Alexander McGubbin; Crown 8vo., pp. 187, with 23 illustrations.

**PRACTICAL MORBID HISTOLOGY: A HANDBOOK FOR THE USE OF STUDENTS AND PRACTITIONERS**, by Robert Donaldson, M.A., M.D., Ch.B. (Edin.), F.R.C.S.E., D.P.H., with a Foreword by Sir Humphry Rolleston, K.C.B., M.D.; 1923. London: William Heinemann (Medical Books), Limited; Demy 8vo., pp. ix. + 364. Price: 15s. net.

**THE OPERATIVE TREATMENT OF GLAUCOMA**, by H. Herbert, F.R.C.S. (Eng.), Lieutenant-Colonel, Indian Medical Service, Retired; 1923. London: Baillière, Tindall and Cox; Demy 8vo., pp. viii. + 152, with 31 figures in the text. Price: 10s. 6d. net.

## Medical Appointments.

DR. R. S. ANDREWS (B.M.A.) has been appointed a Justice of the Peace for the Sussex Magisterial District and Dr. F. T. BEAMISH (B.M.A.) has been appointed a Justice of the Peace for the Northam Magisterial District, Western Australia.

DR. LOTTIE SHARFSTEIN (B.M.A.) has been appointed on probation, Resident Medical Officer, Newington State Hospital and Asylum, New South Wales.

DR. JOHN KENNY (B.M.A.) has been appointed Chairman of the Cossack Boat Licensing Board, Western Australia.

The following appointments on the Board of Directors and to the Honorary Staff of the Sydney Hospital have been notified: DR. A. ASPINALL (B.M.A.) has been elected to the Board of Directors as a representative of the Honorary Medical Staff and by the Board as a member of the House Committee in succession to the late Sir Herbert Maitland and has been appointed to the staff of Honorary Surgeons to fill the vacancy caused by the death of Sir Herbert Maitland; DR. W. E. KAY (B.M.A.) has been appointed Honorary Relieving Assistant Surgeon; DR. H. RITCHIE (B.M.A.) and DR. A. W. HOLMES A COURT (B.M.A.) were promoted to fill the vacancies on the Staff of the Honorary Physicians; DR. E. H. STOKES (B.M.A.) was appointed Honorary Assistant Physician; DR. J. G. HUNTER (B.M.A.) was appointed Honorary Relieving Assistant Physician.

The following appointments have been made at the Royal Alexandra Hospital for Children, Camperdown, New South Wales: DR. W. VICKERS (B.M.A.), as Honorary Surgeon; DR. T. Y. NELSON (B.M.A.), as Honorary Relieving Assistant Surgeon.

The following appointments to the Adelaide Hospital have been gazetted: DR. A. A. LENDON (B.M.A.), as Honorary Assistant Physician; DR. WILLIAM C. SANGSTER (B.M.A.), as Honorary Assistant Surgeon in the Aural Department.

DR. E. J. HOWLEY has been appointed Government Medical Officer at Aramac, Queensland.

DR. I. M. SANDERSON has been appointed District Medical Officer and Public Vaccinator at Jarrahdale, Western Australia.

## Medical Appointments Vacant, etc..

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xviii.

THE PUBLIC SERVICE BOARD, SYDNEY: Assistant Medical Officer.

## Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Societies' Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phoenix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

## Diary for the Month.

- AUG. 1.—Victorian Branch, B.M.A.: Branch.
- AUG. 3.—Queensland Branch, B.M.A.: Branch.
- AUG. 8.—Western Australian Branch, B.M.A.: Council
- AUG. 8.—Melbourne Pediatric Society.
- AUG. 10.—New South Wales Branch, B.M.A.: Clinical Meeting.
- AUG. 10.—Queensland Branch, B.M.A.: Council.
- AUG. 10.—South Australian Branch, B.M.A.: Council.
- AUG. 14.—New South Wales Branch, B.M.A.: Ethics Committee.
- AUG. 15.—Victorian Branch, B.M.A.: Council.
- AUG. 15.—Western Australian Branch, B.M.A.: Branch.
- AUG. 16.—City Medical Association, New South Wales.
- AUG. 21.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
- AUG. 21.—Illawarra Suburbs Medical Association, New South Wales.
- AUG. 24.—Queensland Branch, B.M.A.: Council.
- AUG. 28.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.
- AUG. 30.—South Australian Branch, B.M.A.: Branch.
- AUG. 31.—New South Wales Branch, B.M.A.: Branch.

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated. All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

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